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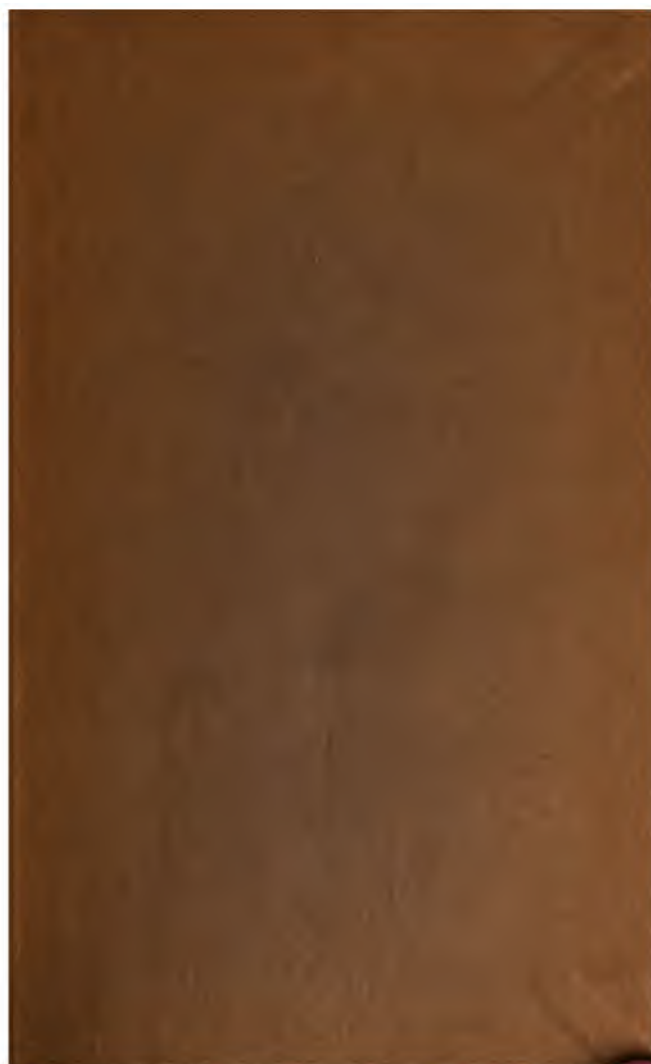


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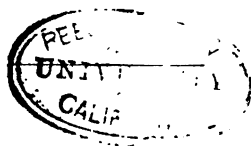


BACON;
HIS WRITINGS
AND
HIS PHILOSOPHY.

BY GEO. L. CRAIK, M.A.

IN THREE VOLUMES.

VOL. III.



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PART II.

BACON'S PHILOSOPHICAL WORKS.

SECTION IV.—THE REMAINDER OF THE *INSTAURATIO MAGNA*, AND THE OTHER PHILOSOPHICAL WRITINGS.

OF the Six Parts of which the *Instauratio Magna* was to consist,* not one was left by Bacon in a completed state. The treatise *De Augmentis Scientiarum* is merely a substitute for the First; the *Novum Organum*, which was to form the Second, is unfinished;† and of the remaining Parts we have only some portions and fragments. We will now proceed to give an account of the several tracts of which the Third Part of the *Instauratio* is composed, as they are commonly arranged.

At its head is placed a short Latin Dedication to Prince Charles, then heir to the crown, afterwards Charles I., which was originally prefixed to the 'Historia Naturalis et Experimentalis ad Condendam Philosophiam,' published, in 8vo., in 1622, by Bacon himself, designated by him the Third Part of the *Instauratio Magna*, but containing only the *Historia Ventorum* (or History of the Winds), the first of six similar histories or inquiries which it was designed to include.‡ Of this volume, which is now scarce, a very neat re-impression, in 12mo., in which certain other tracts were also included, was produced at Leyden in 1638; and there is an English translation of the entire contents of this latter volume "by R. G., Gent." originally printed, in 12mo., at London, in 1653, and reprinted in the Second Part of the *Resuscitatio*, 1670. The principal portion of the volume

* See Vol. ii. p. 25.

† See Vol. ii. p. 314.

‡ See Vol. ii. p. 6.

of translations by R. G. has also been adopted by Mr. Montagu. Shaw has, with unaccountable perverseness, given the *History of the Winds* and what we have of the other similar Histories as portions of the Fourth Part of the *Instauratio*, nowhere, as far as we have observed, even deigning to notice Bacon's own express declaration that they belong to Part Third. In the Dedication to Prince Charles, Bacon describes what he now presents as the first fruits of his intended Natural History (*Primitias Historiæ postæ Naturalis*); and he has bound himself, he says, as it were by a vow, that he shall every month that he may be allowed to live finish and produce, or publish, *edukas*, one or more of the other parts of it, according as the subjects may be more or less difficult or extensive. Others, he hopes, may perhaps be moved by his example to the like industry.

Then follows, in the common arrangement of the Third Part of the *Instauratio*, a short treatise entitled '*Parasceue* (more properly printed *Parasceue*) ad Historiam Naturalem et Experimentalem' (A Preparation for Natural and Experimental History). This was originally published at the end of the '*Novum Organum*, folio, 1620. There is a translation of it in the Second Part of the *Resuscitatio*, by a writer who signs himself W. W. at the end of a short address to the reader, in which he considers the *Parasceue* as an introduction to the *Sylva Sylvarum*. Another translation, apparently by Mr. Wood, is given by Mr. Montagu in his 14th volume. Shaw gives his translation, or paraphrase, of it as part of an Introduction to the *Sylva*.

In a second or extended title the *Parasceue* is called '*Descriptio Historiæ Naturalis*,' &c., that is, 'A Description of Natural and Experimental History, such as may be sufficient in itself, and may serve for laying the basis and foundations of a True Philosophy.' In a short introduction Bacon explains that his reason for publishing his *Instauratio* in portions is, that so much of it at least may be placed out of danger. This consideration has induced him to add to the *Novum Organum* the present Description and Delineation of Natural and Experi-

mental History, embracing materials for the Work of the Interpreter (*Opus Interpretis*), which is to follow it. Its proper place, it might be thought, would rather be when he should have come in the order of his inquiry to the Preparatives.

But it seems to us a wiser part (he proceeds, in the version of W. W.), rather to anticipate it than to tarry for its proper place, because that such an history, as we design in our mind, and shall presently describe, is a thing of exceeding great weight; nor can it be compassed without vast labour and charges, as that which stands in need of many men's endeavours; and, as we have elsewhere said, is a work truly regal. Wherefore we think it not amiss to try, if happily these things may be regarded by others; so that while we are perfecting in order those things which we design, this part, which is so various and burdensome, may in our lifetime, if so it please the Divine Majesty, be provided and prepared, others adjoining their labours to ours in this occasion; especially seeing that our strength, if we should stand under it alone, may seem hardly sufficient for so great a province: for, as for the business itself of the intellect, possibly we shall be able to conquer that with our own strength; but the materials of the understanding are of so large an extent, that those must be gained and brought in from every place, as it were by factors and merchants. Besides we esteem it as a thing scarce worthy our enterprise, that we ourselves should spend time in such a business as is obtainable by almost all men's industries. But that which is the main of the business we will now ourselves perform, which is to propound diligently and exactly the manner and description of such a sort of history as may satisfy our intention, lest men, not being admonished, should loiter out their times, and order themselves after the example of the *Natural Histories* now in use, and so should stray far from our intention.

First, then, he proposes to give some general precepts for the compiling of a History of this kind, and then to lay a particular figure, or exemplification, of it before the eyes of men. Such a History he is wont to call First History, or Mother History.

The remainder of the treatise is digested into ten Aphorisms. They comprise, however, only the general

precepts, and contain scarcely any thing worthy of note that is not to be found in the *Advancement of Learning* or the *De Augmentis*.

But the *Aphorisms* are followed, as originally published along with the *Novum Organum*, by what is called 'A Catalogue of Particular Histories, arranged according to Chapters' (*Catalogus Historiarum Particularium, secundum Capita*), which may perhaps be intended for the particular figure of First History promised in the introductory remarks to the *Parasceue*. The Catalogue is divided from the Aphorisms by a blank leaf; but the paging runs on, the blank leaf being reckoned though not numbered. The Catalogue, however, is not included by W. W. in his translation. Mr. Montagu has printed a translation of it by Mr. W. G. Glen; and it is also given by Shaw in his Introduction to the *Sylva Sylvarum*. The Histories enumerated are 130 in all; namely, 21 to which no heading is prefixed, but which all relate to the elements, constituent parts, principles, and processes of General Nature; 4 entitled Histories of the Greater Masses; 15 Histories of Species; 88 Histories of Man (including his inventions, works, &c.); and 2 of Mathematical subjects (Numbers and Figures).

The next tract is a fragment of a larger work which had been entitled '*Abecedarium Naturæ*' (The Alphabet of Nature). It was first published by Tenison in the *Baconiana* (1679), along with an English translation. In his *Introduction* Tenison observes that the *Abecedarium* was commonly said to be lost, and is well nigh so, the latter part of it only remaining. "This work," he adds, "is said to be a metaphysical piece; but it is not so in the strictest sense. Its principal design is the partition of things into their several classes; a design which his Lordship brought to more perfection in his *Organon* and book *De Augmentis Scientiarum*. And, though in it were handled conditions of things, yet not abstractly from all body, but with reference to it. And therefore his lordship did not call it *Abecedarium Hyperphysicum*, but the *Alphabet of Nature*. And his

lordship giveth express caution in his book of *Advancement* that, where he speaks of conditions of entities, which are called transcendental (such as *Much, Little, The Same, Diverse, Possible, Impossible*), he be not interpreted in a logical, but physical sense. His lordship was much averse to high and useless speculations, and he was wont to express that averseness in the following comparison:—The lark, said he, is an high flyer, and in its flight does nothing but sing; but the hawk flies high, and thence descends and catches its prey." It is not possible, however, to make much, or almost anything, of this fragment. It begins by an enumeration of six Inquisitions respecting the Greater Masses in Nature, which are designated by the six last letters of the Greek Alphabet. What follows about the Conditions of Entities, the Form of the Alphabet, &c., seems to be little more than an undigested miscellany of hints.

Next, in the arrangement of the Third Part of the Instauration, is inserted, as a Preface to the Natural History, a discourse first published in Gruter's collection (1658) as the Preface to a number of pieces entitled by him 'Phænomena Universi, sive Historia Naturalis ad Condendam Philosophiam,' and forming a portion of what he calls the *Impetus Philosophici*. A few sentences of it are translated by Shaw in the Introduction to the *Sylva*. Bacon here points out the necessity of a correct and comprehensive natural history—that is, an arranged collection of facts, ascertained whether by observation or experiment, appertaining to every department of nature—as the only possible foundation on which to erect a true philosophy; and inveighs against the various defects of such collections of this kind as had hitherto been formed. This is done with great copiousness of illustration and felicity of expression; but the considerations dwelt upon and the general strain of the reasoning are for the most part the same as in the *De Augmentis* and the *Novum Organum*. With regard to his own collections of natural facts, the most usual course, he observes, would be to begin with the phenomena of the air; but he, remitting nothing of the severity of his

system, will first take in hand those things which constitute or relate to that more general nature of which either globe is participant. He will begin, therefore, with the history of bodies according to that difference which seems the most simple: namely, the plenty or paucity of matter contained and extended within the same space or boundary. For, whilst among our affirmations respecting nature there is none more true than the twin proposition, that nothing can come out of nothing, nor anything be reduced to nothing, but that the actual quantity of nature, or universal sum of matter, is unalterably permanent and constant, and can by no means be either increased or diminished; this also is not less certain, although it has not been so distinctly noted or asserted (whatsoever men may be wont to fable about the equable power of matter in regard to forms), that, of the actual quantity of matter, more or less is contained within the same dimensions of space according to the diversity of the bodies by which the said spaces are occupied, some bodies being evidently more compact, others more extended or diffused.* Thus a vessel or hollow does not contain equal portions of matter when it is filled with water and when it is filled with air; but more in the one case, and less in the other. Wherefore, if any one should assert that from a certain mass of water an equal mass of air could be produced, it would be the same as if he should say that something could be produced out of nothing. From all this, and much more that follows, it would appear that, when he wrote the present Preface, Bacon's intention was to commence his Natural History with the treatise entitled *Historia Densit et Rari* (the History of Density and Rarity). This, however, has escaped the attention of all his editors.

Next, in the common arrangement of the Third Part of the *Instauratio Magna*, we have the List of the Histories and Inquisitions designed by Bacon for the first six months during which he was to employ himself in

* All the editors of Bacon's works, following Gruter, have printed this passage in such a manner as to make it unintelligible, dividing what is evidently one sentence into two.

compiling his body of Natural History, as it is printed in the volume containing the *Historia Ventorum* (1622) immediately after the Dedication. The six Histories are : 1. The History of the Winds ; 2. The History of Density and Rarity, and of the Coming together and Expansion of Matter in Spaces ; 3. The History of Gravity and Levity ; 4. The History of the Sympathy and Antipathy of Things ; 5. The History of Sulphur, Mercury, and Salt ; 6. The History of Life and Death. But this order, although it has been followed by the editors of the *Instauratio*, is evidently founded upon no scientific principle, nor has it been anywhere announced by Bacon as the order which he meant to adopt in the final arrangement of the work ; it is merely the order in which he proposed to execute certain portions of it. Nor are these six Histories by any means all of which the work was to consist.

The list of the Six Histories is followed, as in Bacon's own publication of 1622, by another discourse upon the general subject of Natural History. A small portion of this disquisition also is inserted by Shaw in the medley which he gives us as the Introduction to the *Sylva Sylvarum*. It is given in full in R. G.'s translation of the 'History of the Winds, &c.' (1653 and 1670). Bacon here observes that in early times the world swarmed with theories or rather fables professing to be systems of the universe, and that even in later days, although the speculations of men had been somewhat more restrained by the discipline of schools and colleges, such fanciful system-making had by no means altogether ceased ; witness Patricius, Telesius, Brunus, Severinus the Dane, Gilbert the Englishman, Campanella, all of whom had advanced upon the stage, and produced their new fables, although they had neither been greeted with much applause nor distinguished by any great elegance of construction.

But of late (he proceeds, as the substance of the passage is given by Shaw), by the doctrine of certain learned men, joined perhaps with some dislike of the former licentiousness and difference in opinions, the sciences are confined to a few par-

ticular authors; and in this confinement impose upon the old and prejudice the young, insomuch that everything is transacted as it were by an edict; and authority goes for truth, not truth for authority. This kind of discipline, however useful it may be for the present, yet certainly excludes and banishes much better things. Indeed we all experience and imitate the sin of our first parents; they would be as gods: but we go farther, for we will be creating new worlds, ever going before and lording it over nature, and would have all things be as seems best to our own folly, not to the divine wisdom, or as they are in nature. And it is a question whether we distort things or our own minds the most, but we certainly stamp the seal of our own image upon the creatures and works of God, instead of carefully inspecting and acknowledging the seals of the Creator; whence it is but just that we are again fallen from our empire over the creation: and thus, though after the first fall man had still some dominion left him over the rebellious creatures, so as by true and solid arts to subdue and bend them to his purpose, yet, by our pride and desire of being like God, and following the dictates of our own reason, we have in great measure lost it; therefore if we have any humility towards the Creator, if we have any reverence and esteem of his works, if we have any charity towards men, or any desire of relieving their miseries and necessities, if we have any love for natural truths, any aversion to darkness, and any desire of purifying the understanding, mankind are to be most affectionately entreated and beseeched to lay aside, at least for a while, their preposterous, fantastic, and hypothetical philosophies, which have led experience captive, and childishly triumphed over the works of God, and now at length condescend, with due submission and veneration, to approach and peruse the volume of the creation, dwell some time upon it, and, bringing to the work a mind well purged of opinions, idols, and false notions, converse familiarly therein. This volume is the language which has gone out to all the ends of the earth, unaffected by the confusion of Babel; this is the language that men should thoroughly learn, and not disdain to have its alphabet perpetually in their hands; and in the interpretation of this language they should spare no pains, but strenuously proceed, persevere, and dwell upon it to the last.

To promote this capital end we are willing to leave, for the present, many principal parts of our *Novum Organum*, or new logic, unfinished, as choosing to set on foot and promote all

the parts of our Instauration rather than to perfect a few of them; with this ardent and constant desire, that what was never attempted before may not now be attempted in vain. We have also considered that though doubtless there are spread over Europe great numbers of extensive, free, sublime, penetrating, solid, and settled geniuses, some whereof may perceive and perhaps approve the scope and use of our new logic, and yet not know how to proceed and apply themselves to real philosophy. If the business depended upon the reading of philosophical books, dispute, or force of thought, they might be abundantly qualified for it, but, as we refer them to the history of nature and the experiments of arts, they may stick here as at a thing unsuitable, or requiring too much time and expense, whilst we cannot desire any one should quit his former knowledge before we put him in possession of better. But after a faithful and copious history of nature and arts shall be collected, digested, laid before, and opened to mankind; there are hopes that such great geniuses as those above mentioned, who both in ancient and later times have been so ready and expert, as by wonderful artifice and workmanship to build systems of philosophy from the poorest materials, will not fail to raise more solid structures when possessed of good and sound materials for the purpose; and this though they should choose to proceed in the old way rather than in that laid down by our new logic, which appears to us either the only one or the best for the purpose; so that upon the whole, though our new logic were perfected, yet could it not greatly promote the re-establishment of the sciences without the natural history we speak of, whilst this natural history may greatly promote the same end without the assistance of our new logic; and therefore we judge it most advisable, first, and above all things, to endeavour at procuring this history.

This is followed by what is entitled *Norma Historiae Presentis* (The Rule or Method of the Present History); by which, however, it is plain that we are to understand, not the History of the Winds, but the proposed Natural and Experimental History in its whole extent. Bacon here says, to adopt the translation of R. G.:—

To the titles comprehended in the catalogue, which belong to the Concretes, we have added the titles of the abstract natures; of which, as of a reserved history, we made mention

in the same place. These are the various figurations of the matter or forms of the first classes, simple motions, sums of motions, measures of motions, and some other things; of these we have made a new alphabet and placed it at the end of this volume. We have taken titles (being no way able to take them all), not according to order, but by choice; those, namely, the inquisition of which, either for use was most of weight, or for abundance of experiments most convenient, or for the obscurity of the thing most difficult and noble, or by reason of the discrepancy of titles among themselves most open to examples. In each title, after a kind of an entrance or preface, we presently propound certain particular topics or articles of inquisition, as well to give light to the present inquisition as to encourage a future. For we are masters of questions, but not of things; yet we do not in the history precisely observe the order of questions, lest that which is for an aid and assistance should prove a hinderance.

He then describes the manner in which he proposes to expound the several subjects, and concludes:—"It appears from what has been stated that the present History will not only serve in place of the Third Book of the *Instauration*, but will be a preparation by no means to be despised for the Fourth, by means of the Titles from the Alphabet and the Topics: and for the Sixth, by means of the greater observations, comments, and canons." But it is to be remembered that the scheme thus laid down was never more than very partially executed; in particular, of the *Novum Abecedarium*, or New Alphabet, which is spoken of as placed at the end of the volume, we have only the fragment printed by Tenison; the volume at the end of which it was Bacon's intention that it should stand was the volume of his general Natural and Experimental History. The modern editors of the *Instauration* appear to have quite overlooked all this.

The 'History of the Winds,' to which we now come, occupies about 240 widely printed octavo pages in the original edition of 1622. It has been translated both by R. G. and by Shaw, who, however, as already noticed, has chosen to place it and the other Histories in the Fourth Part of the *Instauration*.

Like the other Histories, it commences with what Bacon calls an *Aditus*, literally an Entry or Avenue, by way of preface or introduction. The *Aditus* is thus rendered by Shaw :—

The winds may be called the wings of mankind; by means whereof men fly through the sea, and maintain traffic and correspondence with all the parts of the globe. They are also the sweepers of man's habitation, the earth; and at the same time brush and cleanse the air about it. On the other hand they sometimes tear up and enrage the sea, that would otherwise remain quiet or undestructive, and have likewise other mischievous effects. Again, they produce strong and violent motions without human assistance; and thus, as servants to mankind, drive our ships and turn our mills. They might also be applied to abundance of other useful purposes, if men would exert their diligence. The nature of the winds is usually reckoned an occult and secret thing; and no wonder, whilst the nature and power of the air, which the winds administer to and wait upon (as, in the language of the poets, *Æolus* does on *Juno*), remain absolutely unknown. They are not primary creatures, or of the first six days' work, as to their action, no more than the other meteors, but were produced later in the order of creation.

Then are set down what are called *Particular Topics*, that is, articles of inquisition, or questions, relating to the Winds. Thirty-three questions are enumerated in all; and the remainder of the treatise consists of facts having reference to these questions, arranged under heads, and interspersed, though sparingly, with occasional observations. It will suffice for our purpose to subjoin a few of the more notable of these facts, in doing which we shall avail ourselves of R. G.'s not very polished, but generally intelligible enough translation :—

There are some whole countries where it never rains, or at least, very seldom; but there is no country where the wind doth not blow, and that frequently.

In our seas in Europe, when it is fair dry weather, and no particular winds stirring, there blows a soft kind of gale from the east, which followeth the sun.

Those who will not have Columbus to have conceived such a strong opinion concerning the West Indies by the relation of

a Spanish pilot, and much less believe that he might gather it out of some obscure footsteps of the ancients, have this refuge: that he might conjecture there was some continent in the west by the certain and stayed winds which blew from them towards the shores of Lusitania, or Portugal—a doubtful and not very probable thing, seeing that the voyage of winds will hardly reach so large a distance. In the mean time there is great honour due to this inquisition, if the finding of this new world be due to one of those axioms or observations, whereof it comprehends many.

Wheresoever are high and snowy mountains, from thence blow stayed winds until that time as the snow be melted away.

I believe also that from great pools which are full of water in the winter, there blow stayed winds in those seasons, when as they begin to dry up with the heat of the sun; but of this I have no certainty.

Wheresoever vapours are engendered in abundance, and that at certain times, be sure that stayed winds will blow there at the same times.

If stayed and certain winds blow anywhere, and the cause cannot be found near at hand, assure yourself that those certain winds are strangers, and come from far.

It hath been observed that stayed winds do not blow in the night-time, but do rise about three hours after sun-rising. Surely such winds are tired, as it were, with a long journey, that they can scarcely break through the thickness of the night-air, but being stirred up again by the rising of the sun, they go forward by little and little.

The word of attending winds is ours, and we thought good to give it, that the observation concerning them be not lost nor confounded. The meaning is this: divide the year, if you please (in what country soever you be), into three, four, or five parts; and if any one certain wind blow there, two, three, or four of those parts; and a contrary wind but one; we call that wind which blows most frequently the customary or attending wind of that country, and likewise of the times.

Injunction. Humane diligence hath almost ceased and stood still in the observation of attending winds in particular places, which, notwithstanding, should not have been, that observation being profitable for many things. I remember I asked a certain merchant (a wise and discreet man) who had made a plantation in Greenland, and had wintered there, why that country was so extreme cold, seeing it stood in a reasonable

temperate climate. He said it was not so great as it was reported, but that the cause was two-fold. One was, that the masses and heaps of ice which came out of the Scythian sea, were carried thither. The other (which he also thought to be the better reason), was because the west wind there blows many parts of the year more than the east wind, as also, said he, it doth with us: but there it blows from the continent, and cold, but with us from the sea, and warmish; and, said he, if the east wind should blow here in England so often and constantly as the west wind does there, we should have far colder weather, even equal to that as is there.

The south wind blowing, the sea becomes blue, and more bright than when the north wind blows, which causes it to look darker and blacker.

Beware a northern wind when you sow seed, neither would I wish any one to inoculate or graft in a southern wind.

Leaves fall from trees soonest on the south side; but vine sprouts or stalks bud forth and grow most that way.

Winds are hurtful to wheat and all manner of grain at three times: namely, at the opening and at the falling of the flower, and when the grain itself is ripe; for then they blow the corn out of the ear, and at the other two times either they blast the flower or blow it off.

While the south wind blows, men's breath grows ranker, all creatures' appetites decay, pestilent diseases reign, men wax more slow and dull. But when the wind is northwardly, men are more lively, healthful, and greedy after food. Yet the northern wind is hurtful for them that are troubled with the phthisic cough, gout, or any other sharp defluxions.

In an eastern wind all things visible appear bigger; but in a western wind all audible things are heard further, as sounds of bells and the like.

The east-north-east wind draws clouds to it. It is a proverb amongst the Greeks to compare it to usurers, who by laying out money do swallow it up. It is a vehement and large wind, which cannot remove clouds so fast as they will turn back and press upon it, which is likewise seen in great fires, which grow stronger against the wind.

March winds are far more drying than summer winds, inso-much that such as make musical instruments will stay for March winds to dry the stuff they make their instruments of, to make it more porous and better sounding.

In Wales, in the county of Denbigh, a mountainous and

rocky country, out of certain caves (as Gilbertus relateth) are such vehement eruptions of wind, that clothes or linen laid out there upon any occasion are blown up and carried a great way up into the air.

In Aber-Barry, near Severn, in Wales, in a rocky cliff, are certain holes, to which, if you lay your ear, you shall hear divers sounds and murmurs of winds under ground.

Acosta hath observed that the towns of Plata and Potosa, in Peru, are not far distant one from the other, and both situated upon a high and hilly ground, so that they differ not in that. And yet Potosa hath a cold and winter-like air, and Plata hath a mild and spring-like temperature; which difference it seems may be attributed to the silver mines which are near Potosa; which sheweth that there are breathing-places of the earth, as in relation to hot and cold.

There are certain wells in Dalmatia and the country of Cyrene (as some of the ancients record), into which if you cast a stone, there will presently arise tempests, as if the stone had broken some covering of a place in which the force of the winds was enclosed.

It hath been observed that there is a murmuring of woods before we do plainly perceive the winds; whereby it is conjectured that the wind descends from a higher place; which is likewise observed in hills (as we said before), but the cause is more ambiguous by reason of the concavity and hollowness of the hills.

Wind follows darted or (as we call them) shooting stars, and it comes that way as the stars hath shot, whereby it appears that the air hath been moved above before the motion comes to us.

Small stars are not seen before the rising of winds, though the night be clear and fair; because, it should seem, the air grows thick, and is less transparent by reason of that matter which afterward is turned into wind.

The rainbow, which is, as it were, the lowest of meteors, and nearest to us, when it doth not appear whole, but curtailed, and, as it were, only some pieces of the horns of it, is dissolved into winds as often or rather oftener than into rain.

There arise many great and strong winds some hours before the eclipse of the moon: so that if the moon be eclipsed in the middle of the night, the winds blow the precedent evening; if the moon be eclipsed towards the morning, then the winds blow in the middle of the precedent night.

It is reported here in England, that, in those days that Gascoigne was under our jurisdiction, there was a petition offered to the king by his subjects of Bordeaux and the confines thereof, desiring him to forbid the burning of beath in the counties of Sussex and Southampton, which bred a wind towards the end of April which killed their vines.

It is thought that the sound of bells will disperse lightning and thunder; in winds it hath not been observed.

Pliny relates that the vehemence of a whirlwind may be allayed by the sprinkling of vinegar in the encounter of it.

It is reported of Mount Athos, and likewise of Olympus, that the priests would write in the ashes of the sacrifices which lay upon the altars built on the tops of those hills, and when they returned the year following (for the offerings were annual) they found the same letters undisturbed and uncanceled, though those altars stood not in any temple, but in the open air; whereby it was manifest that in such a height there had neither fallen rain nor wind blown.

They say that on the top of the Peak of Teneriffe, and on the Andes betwixt Peru and Chili, snowlieth upon the borders and sides of the hills, but that on the tops of them there is nothing but a quiet and still air, hardly breathable by reason of its tenuity: which also, with a kind of acrimony, pricks the eyes and orifice of the stomach, begetting in some a desire to vomit, and in others a flushing and redness.

If the south wind begin to blow two or three days, sometimes the north wind will blow presently after it. But if the north wind blows as many days, the south wind will not blow until the wind have blown a little from the east.

When the year is declining, and winter begins after autumn is passed, if the south wind blows in the beginning of winter, and after it comes the north wind, it will be frosty winter. But if the north wind blow in the beginning of winter and the south wind come after, it will be a mild and warm winter.

Pliny quotes Eudoxus to show that the order of winds returns after every four years, which seems not to be true, for revolutions are not so quick. This, indeed, hath been by some men's diligence observed, that greatest and most notable seasons (for heat, snow, frost, warm winters, and cold summers) for the most part return after the revolution of five-and-thirty years.

It hath been seen sometimes at sea that winds have come from contrary parts together, which was plainly to be perceived

by the perturbation of the water on both sides, and the calmness in the middle between them; but after those contrary winds have met, either there hath followed a general calm of the water everywhere, namely, when the winds have broken and quelled one another equally, or the perturbation of the water hath continued, namely, when the stronger wind hath prevailed.

In our greatest Britain ships (for we have chosen those for our pattern) there are four masts, and sometimes five, set up one behind the other, in a direct line drawn through the middle of the ship, which masts we will name thus:—

The mainmast, which stands in the middle of the ship, the foremast, the mizenmast (which is sometimes double), and the spritmast.

Each mast consists of several pieces, which may be lifted up and fashioned with several knots and joints, or taken away; some have three of them, some only two.

The spritsail mast from the lower joint lies bending over the sea, from that it stands upright; all the other masts stand upright.

Upon the masts hang ten sails, and when there be two mizenmasts, twelve; the mainmast and foremast have three tires of sails, which we will call the mainsail, the topsail, and the maintopsail: the rest have but two, wanting the maintopsail.

The sails are stretched out across near the top of every joint of the mast by certain beams which we call yards, to which the upper parts of the sails are fastened; the lower parts are fastened with ropes at each corner, the mainsails to the sides of the ship, top and maintopsails to the yards which are next below them.

The yard of every mast hangs across; only the yards of the mizenmasts hang sloping, one end up and the other down; in the rest they hang straight across the masts like unto the letter T.

The mainsails of the mainmast, foremast, and bowsprit are of a quadrangular parallelogram form; the top and maintop sails somewhat sharp, and growing narrow at the top; but the top mizensails are sharp, the lower or main sails triangular.

In a ship of eleven hundred ten, and which was one hundred and twelve foot long in the keel, and forty in breadth in the hold, the mainsail of the mainmast was two-and-forty foot deep and eighty-seven foot broad.

The topsail of the same mast was fifty foot deep, and eighty-four foot broad at the bottom, and forty-two at the top.

The maintopsail was seven-and-twenty foot deep, and two-and-forty broad at the bottom, and one-and-twenty at the top.

The foremost mainsail was forty foot and a half deep, and seventy-two foot broad.

The topsail was six-and-forty foot and a half deep, and sixty-nine foot broad at the bottom, and six-and-thirty at the top.

The maintopsail was four-and-twenty foot deep, six-and-thirty feet broad at the bottom, and eighteen foot at the top.

The mizen mainsail was, on the upper part of the yard, one-and-fifty foot broad ; in that part which was joined to the yard, seventy-two foot : the rest ending in a sharp point.

The topsail was thirty feet deep, fifty-seven foot broad at the bottom, and thirty foot at the top.

If there be two mizenmasts, the hindermost sails are less than the foremost about the fifth part.

The mainsail of the bowsprit was eight-and-twenty foot deep and a half, and sixty foot broad.

The topsail five-and-twenty foot and a half deep, and sixty foot broad at the bottom, and thirty at the top.

The proportions of masts and sails do vary, not only according to the bigness of ships, but also according to the several uses for which they are built: some for fighting, some for merchandize, some for swiftness, &c. But the proportion of the dimension of sails is no way proportioned to the number of tons whereof the ships consist; seeing a ship of five hundred tons or thereabout may bear almost as large a sail as the other we spake of, which was almost as big again. Whence it proceeds that lesser ships are far swifter and speedier than great ones, not only by reason of their lightness, but also by reason of the largeness of their sails in respect to the body of the ship; for, to continue that proportion in bigger ships would be too vast and impossible a thing.

By this motion of the winds in the sails of ships (if it be a merry and prosperous gale) a merchant's ship may sail six score Italian miles in four-and-twenty hours; for there are certain packet-boats which are built a purpose for swiftness (that are called Caravels) which will go further. But when the wind is clean contrary, they fly to this last refuge, and a very weak one, to go on their course, namely, to proceed sideways, as the wind will suffer them, out of their course, then

turn their way again towards their course, and so proceed in an angular way; by which progression (which is less than creeping, for serpents creep on by crooked turnings, but they make angles) they may in four-and-twenty hours go fifteen miles' journey. By long observation, the fifth day of the moon is feared by mariners for stormy.

If the new moon do not appear before the fourth day, it foreshows a troubled air for the whole month.

If the new moon, at her first appearance or within a few days after, have its lower horn obscure or dusky, or any way blemished, it signifies stormy and tempestuous days before the full moon: if it be ill coloured in the middle, tempests will come about the full of the moon; if it be so about the upper part of the horn, they will be about the decreasing of the moon.

If at the fourth rising the moon appear bright, with sharp horns, not lying flat, nor standing upright, but in a middle kind of posture between both, it promises fair weather for the most part, until the next new moon.

If at the same rising it be red, it portends winds; if dusky or black, rain; but, howsoever, it signifies nothing beyond the full moon.

An upright moon is almost always threatening and hurtful, but it chiefly portends winds; but if it have blunt horns and, as it were, cut off short, it rather signifies rain.

If one horn of the moon be sharp and the other blunt, it signifies wind; if both be blunt, rain.

If a circle or halo appear about the moon, it signifies rain rather than wind, unless the moon stands directly within that circle, for then it signifies both.

Circles about the moon always foreshow winds on that side where they break, also a notable shining in some part of the circle signifies winds from that part where the shining is.

If the circles about the moon be double or treble, they foreshow horrible and rough tempests, and especially if these circles be not whole, but spotted and divided.

Full moons, as concerning the colours and circles, do in a manner foreshow the same things as the fourth rising, but more present, and not so long delayed.

The globe of flame which the ancients called Castor, which is seen by mariners and sea-faring men at sea, if there be but one, presages a cruel tempest (Castor is the dead brother), and much more if it stick not close to the mast, but dances up and

down. But if they be twins (and Pollux, the living brother, be present), and that when the tempest is high, it is a good presage; but if there be three (namely, if Helen, the plague of all things, come in), it will be a more cruel tempest: so that one seems to show the undigested matter of the storm; two, a digested and ripe matter; three or more, an abundance that will hardly be dispersed.

Fires upon the hearth, when they look paler than they are accustomed, and make a murmuring noise within themselves, do presage tempests; and if the flame rises, bending and turning, it signifies wind chiefly; and when the snuffs of lamps and candles grow like mushrooms with broad heads, it is a sign of rainy weather.

Leaves and straws playing on the ground, without any breath of wind that can be felt, and the down of plants flying about, feathers swimming and playing upon the water, signify that wind is near at hand.

Water-fowls flying at one another, and flying together in flocks, especially sea-mews and gulls, flying from the sea and lakes, and hastening to the banks and shores, especially if they make a noise, and play upon dry land, they are prognostics of winds, especially if they do so in the morning.

But, contrarywise, sea-fowls going to the water, and beating with their wings, chattering, and bathing themselves, especially the crow, are all presages of storms.

Duckers and ducks cleanse their feathers with their bills against wind; but geese, with their importunate crying, call for rain.

A heron flying high, so that it sometimes flies over a low cloud, signifies wind; but kites, when they fly high, foreshow fair weather.

Crows, as it were, barking after a sobbing manner, if they continue in it, do presage winds; but if they catchingly swallow up their voice again, or croak a long time together, it signifies that we shall have some showers.

A chattering owl was thought by the ancients to foretell change of weather: if it were fair, rain; if cloudy, fair weather; but with us the owl making a clear and free noise, for the most part signifies fair weather, especially in winter.

Birds perching in trees, if they fly to their nests, and give over feeding betimes, it presages tempest; but the heron standing, as it were, sad and melancholy upon the sand, or a crow walking up and down, do presage wind only.

Dolphins playing in a calm sea are thought to presage wind from that way they come; and if they play and throw up water when the sea is rough, they presage fair weather; and most kinds of fishes swimming on the top of the water, and sometimes leaping, do prognosticate wind.

Upon the approach of wind, swine will be so terrified and disturbed, and use such strange actions, that country people say that creature only can see the wind and perceive the horridness of it.

A little before the wind, spiders work and spin carefully, as if they prudently forestalled the time, knowing that in windy weather they cannot work.

Before rain the sound of bells is heard further off, but before wind it is heard more unequally, drawing near and going further off, as it doth when the wind blows really.

Pliny affirms for a certain that three-leaved grass creeps together, and raises its leaves against a storm.

He says likewise, that vessels which food is put into will leave a kind of sweat in cupboards, which presage cruel storms.

There lies hidden a flatuous and expansive spirit in quicksilver, so that it doth (in some men's opinions) imitate gunpowder: and a little of it mixed with gunpowder will make the powder stronger. Likewise the chymists speak the same of gold, that being prepared some way, it will break out dangerously, like to thunder; but these things I never tried.

As originally published the 'History of the Winds' had appended to it the *Aditus*, or Introduction, to the other five enumerated Histories. The second History, or that of Density and Levity, was after Bacon's death published from his papers, first by Gruter (1653), among the *Impetus Philosophici* (pp. 337-379), and secondly in a more perfect form by Rawley in the *Opuscula Varia Posthuma* (1658). That History, therefore, now follows the 'History of the Winds.' We believe the only English translation of the 'Historia Densi et Rari' is that inserted by Shaw in the Fourth Part of his arrangement of the *Instauration*, and entitled by him 'A Plan for the Particular History of Condensation and Rarefaction in Natural Bodies.' The following is Shaw's version of the *Aditus*, or Introduction:—

No wonder if nature remain debtor to philosophy and the sciences, when she has never been summoned to an account; for there has hitherto been no careful and regular inquiry, no exact or tolerable estimate made, as to the sum or quantity of matter in nature; nor any notice taken how it is disposed and laid out upon bodies. It is a just axiom that nothing can be detracted from or added to the sum total of the universe; and some indeed have handled the common-place, how bodies may be relaxed and contracted, in respect of more and less, without admitting a vacuum between: but for the nature of condensation and rarefaction, one attributes it to a greater and less quantity of matter; another eludes the point; whilst the generality following their author, think to discuss and settle the whole matter by that trifling distinction of art and power. And even they who attribute condensation and rarefaction to the different quantities of matter, which is the true notion; and do not totally deprive the *materia prima* of quantity; though for other forms they require it to be indifferent, yet here end their inquiry, and look no farther without perceiving the consequence: thus slightly passing over, or at best not fully pursuing a consideration which regards infinite particulars, and is in a manner the foundation of all natural philosophy.

To proceed, therefore, upon what has been justly laid down in all the transmutation of bodies; matter can never be annihilated, but it requires the same omnipotent power to annihilate as to create out of nothing; neither of which ever happens in the course of nature, so that the original quantity of matter remains still the same, without addition or diminution. And that this original stock of matter is differently portioned out among bodies cannot be doubted; for it were madness, by abstract subtilties, to pretend that one hogshead contains as much water as ten hogsheads of water; or, that one hogshead of air contains as much as ten hogsheads of air. But though it be admitted that the quantity of matter rises in proportion to measure in the same body, this is still questioned in bodies of different kinds: but if it be demonstrated that one hogshead of water turned into air will make ten hogsheads of air (and it may rather be proved to make a hundred), there is an end of the dispute, for in this case the water and the air are the same body, now contained in ten hogsheads, though before it was contained in one: and therefore to assert that one whole hogshead of water may be converted into but one whole hogshead of air, is in effect to assert that something may be reduced to nothing;

for in this case one-tenth part of the water is sufficient, and the other nine parts must then be annihilated : so, on the contrary, to assert that a hogshead of air is convertible into a hogshead of water, is to assert that something may be created out of nothing ; for the hogshead of air will make but the tenth part of a hogshead of water, and therefore the other nine parts must be produced from nothing.

We shall, however, ingenuously confess it a difficult task to settle and ascertain the exact proportions and quantities of matter contained in different bodies, and to show by what industry and sagacity a true information may be had thereof ; though the great and extensive usefulness of the inquiry may abundantly reward the pains that shall be bestowed upon it : for to understand the density and the rarity of bodies, and much more how to procure and effect their condensation and rarefaction, is a thing of the utmost importance, both in speculative and practical philosophy ; therefore as the inquiry is, perhaps, of all others the most fundamental and universal, we should come to it well prepared, for all natural philosophy is a perfectly loose and untwisted thing without it.

This History, it therefore appears, is in reality mainly an inquiry into what is now called the specific gravity, or, as Bacon terms it, the comparative gravity (*gravitas comparata*), of different substances. Instead of distilled water, which is now commonly employed as the standard of comparison, he adopts pure gold as his standard. But his tables of specific gravities, if they were narrowly examined, would probably be found to exhibit much more serious discordances with the results of modern investigation than this. Bacon himself, however, distinguishes density and rarity throughout from gravity and levity, venturing to affirm only that the latter qualities appear to have a general consent or agreement with the former. And he had also, as we have seen, proposed a separate 'History of Gravity and Levity.' Much of the present investigation, besides, is occupied with the subject of heat and cold.

The 'History of Density and Rarity' shows all Bacon's wonted activity and patience in the collection of facts, and also considerable ingenuity in many of the experiments which are detailed or suggested ; though it would

be difficult to detect in the conduct of the inquiry the regular application either of what he has propounded in the *Novum Organum* as his own novel method, or of any other. But it does not contain many things that are now of much interest in any point of view. The following extracts from Shaw's version will afford a sufficient specimen of the work :—

We know of nothing heavier than pure gold ; nor has any method yet been found of increasing the gravity of pure gold by art.

But lead has been observed to increase both in bulk and weight ; especially by lying in cellars underground, where bodies readily grow mouldy. This has principally been observed in stone statues ; the feet whereof, where fastened together with bands of lead, that have been found swelled so that some parts thereof hung prominent or pendulous, like warts upon the stone. But whether this were really an increase of the lead or only a sprouting of its vitriol, should be farther examined.

Having once, by accident, left a cut citron in a parlour for two months in the summer, I afterwards found a sprouted putrefaction on the part that was cut, appearing to rise in certain hairs, the height of an inch ; and on the top of each hair grew a head like the head of a small iron nail, thus plainly beginning to resemble a plant.

Air is simply dilated by heat ; for in this case there is nothing separated or emitted, as in tangible bodies ; but barely an expansion made.

In the case of cupping-glasses, when the glass and the air it contains are heated, the glass is applied to the skin ; and soon after the air which was dilated by the heat, gradually contracts itself as the heat decreases, upon which the flesh is thrust into the glass by the motion of connexion. If it be desired that the cupping-glass should draw stronger, let a sponge be dipped in cold water and applied to the belly of the glass ; for by this coolness the internal air will be more contracted, and the attraction of the glass increased.

If a glass be heated and inverted into water, it will attract the water, so as to fill a third part of the cavity ; whence it is plain that the air was rarefied by the heat in that proportion. But if instead of a thin glass, which will not bear a great heat without danger of breaking, an iron or copper vessel were

employed and heated to a greater degree, we judge that air might be dilated above twice or thrice more, which is an experiment very well worth trying; as likewise to ascertain the degree whereto the air may be rarefied, that we may the better judge of its degree of rarefaction in the upper regions, and thence of the ether itself.

It appears very plain from the thermometer, that a small increase of heat may prodigiously expand the air, so that the hand laid upon the glass, a few rays of the sun, or even the breath of the bystanders, shall affect it; nay, the tendencies of the external air to cold and heat, though imperceptible to the touch, do yet constantly dilate and contract the air in the glass.

Hero describes an altar built so artificially, that when the offering is lit up thereon, water shall of a sudden descend and put out the fire. No other contrivance is requisite to this purpose than to leave a close hollow space under the altar, filled with air, which being heated by the fire, and consequently dilated, shall find no exit but through a pipe rising along the wall of the altar; and having its mouth bent down at last so as to discharge upon the altar. This upright pipe was filled with water, and had a belly in the middle that it might contain the larger quantity, and a stop-cock at the bottom to prevent the water from falling through; which stop-cock being turned, admitted the dilated air to rise up and drive out the water.

It was the invention of Fracastorius to recover persons from apoplectic fits, by applying a heated metalline pan, at some distance, round the patient's head, in order to dilate, excite, and revive the spirits stagnating, congealed, or blocked up by the humours in the cells of the brain.

Bullets likewise shot from a gun, after their projectile motion entirely ceases, so as that to the eye they shall seem perfectly at rest, yet a great shuddering motion or pulsation will be found in their small parts for a long while after; inasmuch that if any proper matter be laid upon them it will thence receive and manifest a considerable force; and this proceeds not so much from the burning heat as from the tremor of percussion.

Rods of wood being fresh gathered and kept turning in hot embers, acquire a softness, whence they may be bent at pleasure: and this experiment should be tried in old rods and canes.

Combustible bodies open so as by fire first to emit a fume, then to take flame, and lastly fall into ashes. . . .

There are certain ways of killing and destroying metals, so that when dissolved and opened they shall be no longer capable of reduction. And something of this kind appears remarkably in quicksilver; which, if forcibly ground along with a little turpentine, spittle, &c., the quicksilver is killed, and thence acquires an aversion to recover its pristine form.

A fleece of wool gains weight by lying long upon the earth, which could not happen if some pneumatical matter were not condensed into such as is tangible and ponderous.

It was an ancient practice at sea to spread and hang out fleeces of wool by night on the sides of ships, but so as not to touch the water; and by this means to collect and express a sweet water out of them in the morning, for the service of the voyage.

I have found upon trial that four ounces of wool being fastened to a rope and let down into a well, fifty-six yards deep, but so as to come only within twelve yards of the water, the wool has, in a night's time, acquired the additional weight of an ounce and a drachm; and perfect drops of water have appeared to stick on the outside of the wool, so that one might in a manner have washed one's hands therewith. And this I have several times tried, with different increases of weight, but always somewhat considerable.

In China they have artificial mines of porcelain earth, by burying at some depth underground a certain mass of prepared plaster or cement, which lying thus buried for about forty years, is converted into porcelain. So that these mines are transmitted, like an estate, from father to son.

I have been well assured that an egg, by long lying at the bottom of a moat, was found manifestly petrified, with the colours and distinctions of the shell, white and yolk, still remaining; only the shell was here and there broke, and shone scaly. And I have frequently heard that the white of an egg has been turned to a stony matter; but neither know the truth of the thing nor the manner of doing it.

There are found in the West Indies, even in sandy deserts and dry places, large canes containing in every joint a considerable quantity of sweet water, to the great refreshment of the traveller.

There is said to be a certain tree in one of the Canary Islands that continually distils water, and has a certain dewy cloud always hanging over it. It were highly worth examining,

whether any vegetable has such a potential coldness as to condense air into water. Of this particular, therefore, let diligent inquiry be made; though I rather suspect that these trees are no more than the knotted canes above mentioned.

Upon the smooth leaves of certain trees, as those of the oak, that neither drink in nor preserve moisture, there are found in England sweet, or, as it were, honey-dews like manna, especially in the month of May; but whether this proceeds from any coagulating virtue in the leaves, or whether the leaves only preserve the dew, is not certain.

These statements, of course, are by no means to be taken as all perfectly trustworthy: they are curious not so much in themselves as for the insight they give us into Bacon's mind, into the state both of his opinions and his knowledge. In the end he comes to the following conclusions, which, however, he designates only *Canones Mobiles*, meaning apparently deductions liable to correction from the results of further inquiry:—

The total sum of the matter in the universe ever remains the same, and there is no passage in nature either from nothing or to nothing.

Of this original sum there is more in some bodies and less in others under the same dimensions.

A greater and less quantity of matter afford the true criteria, if rightly understood, of density and rarity.

There is a boundary or limited degree of density and rarity, but not in any subject known to us.

There is no absolute vacuum in nature.

Matter folds and wraps itself up within the bounds of density and rarity, and again relaxes and unbends itself without admitting an absolute vacuity.

The differences of density and rarity in the tangible bodies known to us do not greatly exceed the proportions of thirty-two to one.

The difference between the rarest tangible body and the densest pneumatocal body is above a hundred to one.

Flame is rarer than air, and oil than water.

Flame is not rarified air, nor oil rarified water; but they are plainly heterogeneous bodies, without any great relation between them.

The spirits of vegetables and animals are breaths composed

of an aerial and flamy pneumatual substance, as their juices are of one that is aqueous and oily.

All tangible bodies here with us have a pneumatual substance, or spirit, joined to and included in them.

No spirits, such as those of vegetables and animals, are found loose and unconfined amongst us, but shut up and imprisoned in tangible bodies.

Condensation and rarefaction are the proper effects of cold and heat.

Heat operates upon pneumatual bodies by simple expansion.

Heat has two operations upon tangible bodies, and always dilates the pneumatual parts, but sometimes contracts and sometimes relaxes the gross ones.

It observes this rule: when the spirit of the body is discharged, it contracts and indurates, but softens and dissolves when the spirit is detained.

Colliquation begins with expanding the pneumatual parts of the subject; but other dissolutions begin with expanding the gross parts, and setting free the operations of those that are pneumatual.

Next to heat and cold, the most powerful rarifier and condenser of bodies is consent and flight.

Restoration from violence both dilates and condenses, in a contrary tendency to the violence.

Assimilation both dilates and condenses, as the assimilating body is rarer or denser than the body assimilated.

The rarer the body, the greater expansion and contraction it is capable of from external violence, to a certain degree.

If tension or pressure exceeds its bounds in a rare body, such a body frees itself more powerfully than a dense one, as being more active.

The most powerful expansion is that of air and flame conjointly.

Dilation and contraction are but imperfect, where the bodies easily and readily restore themselves.

Density and rarity have a great affinity with gravity and levity.

Man has but little power in the business of condensation, for want of a potent degree of cold.

Age is like a lambent fire, and acts like heat, though in a more exquisite manner.

Age brings bodies either to a state of putrefaction or dryness.

Of the next three enumerated Histories we have only

the *Aditus*, or Introductions, as published at the end of the '*Historia Ventorum*' (1622). We give them as translated by R. G.

The History of Heavy and Light.—The motion of gravity and lightness the ancients did illustrate with the name of natural motion, for they saw no external efficient nor no apparent resistance, yet the motion seemed swifter in its progress. This contemplation, or rather speech, they seasoned with that mathematical fantasy of the staying or stopping of heavy things at the centre of the earth (although the earth should be bored quite through), and the scholastical invention of the motion of bodies to their several places. Having laid or set down these things, supposing they had done their parts, they looked no further, but only that which some of them more carefully inquired after, namely, of the centre of gravity in divers figures, and of such things as are carried by water. Neither did any of the modern authors do anything worth speaking of concerning this, only by adding some few mechanical things which they had also wrested with their demonstrations. But, laying many words aside, it is most certain that a body cannot suffer but by a body, neither can there be any local motion made, unless it be solicited or set forward, either by the parts of the body itself which is moved or by the adjacent bodies, which either touch it or are near unto it, or are at least within the orb of its activity. So that Gilbertus did not unknowingly introduce magnetic powers, he also becoming a loadstone, namely, drawing more things by those powers than he should have done, and building a ship, as it were, of a round piece of wood.

The History of the Sympathy and Antipathy of things.—Strife and amity in nature are the eggers on of motions, and the keys of works. Hence proceed the union and disseiuation of bodies, hence the mixtion and separation of bodies, hence the high and intimate impressions of virtues, and that which they call joining of actives with passives; finally, they are the great and wonderful works of nature. But this part of philosophy, namely, of the sympathy and antipathy of things, is most impure, which also they call natural magic, and (which always likely comes to pass) where diligence and care hath wanted, there hath hope remained; but the operation thereof in men is merely like unto certain soporiferous medicines which cast one asleep, and do moreover send and infuse into him merry and pleasant dreams; for

first it casts man's understanding into a sleep, representing unto him specifical properties and hidden virtues, whereby men awake no more, nor look after the finding and searching out of true causes, but acquiesce and lie still in these idle ways; then it insinuates an innumerable company of fictions like unto dreams, and vain men hope to know the nature by the outward shape and show, and by extrinsical similitude to discover inward properties. Their practice also is very like unto their inquiry, for the precepts of natural magic are such, as if men should be confident that they could subdue the earth, and eat their bread without the sweat of their brow, and to have power over things by idle and easy applications of bodies; and still they have in their mouths, and, like undertakers or sureties, they call upon the loadstone and the consent which is between gold and quicksilver; and some few things of this kind they allege for to prove other things which are not bound by any such like contract. But God hath appointed the best of things to be inquired out, and be wrought by labours and endeavours. We will be a little more careful in searching out the law of nature and the mutual contracts of things, neither favouring miracles, nor making too lowly and straightened an inquisition.

The History of Sulphur, Mercury, and Salt.—This triple of principles hath been introduced by the chymists, and, as concerning speculations, is of them which they bring the best invention. The most subtle and acute of these, and those who are most philosophical, will have the elements to be earth, water, air, and the sky. And these they will not have to be the matter of things, but the matrixes in which the specifical seeds of things do engender in the nature of a matrix. But for the *materia prima*, or primary matter (which scholars do lay down, as it were, naked and indifferent), they substitute those three, sulphur, mercury, and salt, out of which all bodies are gathered together and mixed. We do accept of their words, but their opinions are not very sound. Yet that doth not ill agree with their opinion, namely, that we hold two of them, to wit, sulphur and mercury (taken according to our sense), to be very first and prime natures, and most inward figurations of matter, and almost chief among the forms of the first classis. But we may vary the words of sulphur and mercury, and name them otherwise oily, waterish, fat, crude, inflammable, not inflammable, or the like; for these seem to be two very great things of the three, and which possess and penetrate the universe, for amongst subterranean

things they are sulphur and mercury, as they are called; in the vegetable and animal kind they are oil and water; in the inferior spiritual things they are air and flame; in the heavenly, the body of a star and the pure sky; but of this last duality we yet say nothing, though it seem to be a probable deciphering. For if they mean by salt the fixed part of the body, which is not resolved either into flame or smoke, this belongeth to the inquisition of fluid and determinate things; but if we take salt according to the letter, without any parabolical meaning, salt is no third thing from sulphur and mercury, but mixed of both, connexed into one by an acrimonious and sharp spirit. For all manner of salt hath inflammable parts, and other parts also which not only will not take fire, but do also abhor it and fly from it. Yet the inquisition of salt being somewhat allied to the inquisition of the other two, and exceeding useful, as being a tie and band of both natures, sulphurous and salt, and the very rudiment of life itself, we have thought fitting to comprehend it also within this history and inquisition. But, in the mean time, we give you notice that those spiritual things, air, water, stars, and sky, we do (as they very well deserve it) reserve them for proper and peculiar inquisitions; and here in this place to set down the history only of tangible, that is to say, mineral or vegetable sulphur and mercury.

The last of the six enumerated Histories, that of *Life and Death*, was completed by Bacon, and published by him, in 8vo., in 1623, with the title of '*Historia Vitæ et Mortis, quæ est Instaurationis Magnæ Pars Tertia.*' In this original edition the work fills 454 pages. An anonymous translation of it was published, in a duodecimo volume, in 1638, under the title of "*The Historie of Life and Death, with Observations Naturale and Experimentale for the prolonging of Life*; written by the Right Honorable Francis Lo: Verulam, Viscount St. Alban.—Printed for Humphrey Mosley at the Prince's Arms in Paul's Church Yard." It is dedicated by the bookseller to the Rt: Worshipful Sir Edward Mosley, Knight, his Majesty's Attorney General of the Duchy of Lancaster, with whom, however, the dedicator claims no relationship, their names, he says, agreeing "only in denomination." The *Aditus* (called by this anonymous translator the *Access*) is also translated under the title of '*The Entrance*' by R. G. at the end of the '*History*

of the Winds' (1653). And along with the seventh edition of the *Sylva Sylvarum*, folio, 1658, appeared a new translation of the entire work, under the title of 'History, Natural and Experimental, of Life and Death; or, of the Prolongation of Life.' It was introduced by the following address 'To the Reader' from Dr. Rawley, the editor of the *Sylva* :—

I am to give advertisement that there came forth, of late, a translation of this book by an unknown person, who, though he wished well to the propagating of his lordship's works, yet he was altogether unacquainted with his lordship's style and manner of expressions, and so published a translation lame and defective in the whole. Whereupon, I thought fit to recommend the same to be translated anew by a more diligent and zealous pen, which hath since travailed in it; and though it still comes short of that lively and incomparable spirit and expression which lived and died with the author, yet I dare avouch it to be much more warrantable and agreeable than the former. It is true this book was not intended to have been published in English, but seeing it hath been already made free of that language, whatsoever benefit or delight may redound from it, I commend the same to the courteous and judicious reader.

W. R.

This translation, therefore, may be considered as having been at least sanctioned, if not actually revised, by Rawley. It is, however, very incorrectly printed. There is also a translation by Shaw, by whom this History of Life and Death is made to commence the Fourth Part of the *Instauration*.

The work is preceded by a Dedication, thus given in the translation published by Rawley :—

To the present Age and Posterity, Greeting.

Although I had ranked the History of Life and Death as the last amongst my six monthly designations, yet I have thought fit, in respect of the prime use thereof (in which the least loss of time ought to be esteemed precious), to invert that order and to send it forth in the second place. For I have hope and wish that it may conduce to a common good; and that the nobler sort of physicians will advance their thoughts, and not employ their time wholly in the sordidness of cures, neither be honoured for necessity only, but that they will become coadjutors

and instruments of the Divine omnipotence and clemency, in prolonging and renewing the life of man : especially, seeing I prescribe it to be done by safe and convenient and civil ways, though hitherto unassayed. For though we Christians do continually aspire and pant after the land of promise, yet it will be a token of God's favour towards us, in our journeyings through this world's wilderness, to have our shoes and garments (I mean those of our frail bodies) little worn or impaired.

FR. ST. ALBAN.

The *Aditus*, called 'The Preface' in this translation, is as follows :—

It is an ancient saying and complaint, that life is short and art long. Wherefore, it behoveth us, who make it our chiefest aim to perfect arts, to take upon us the consideration of prolonging man's life : God, the author of all truth and life, prospering our endeavours. For though the life of man be nothing else but a mass and accumulation of sins and sorrows, and they that look for an eternal life set but light by a temporary, yet the continuation of works of charity ought not to be condemned even by us Christians. Besides, the beloved disciple of our Lord survived the other disciples : and many of the fathers of the church, especially of the holy monks and hermits, were long lived ; which shows, that this blessing of long life, so often promised in the old law, had less abatement after our Saviour's days than other earthly blessings had. But to esteem of this as the chiefest good, we are but too prone. Only the inquiry is difficult how to attain the same ; and so much the rather, because it is corrupted with false opinions and vain reports. For both those things which the vulgar physicians talk of, radical moisture and natural heat, are but mere fictions ; and the immoderate praises of chemical medicines first puff up with vain hopes, and then fail their admirers.

And as for that death which is caused by suffocation, putrefaction, and several diseases, we speak not now, for that pertains to an history of physic ; but only of that death which comes by a total decay of the body, and the inconcoction of old age. Nevertheless, the last act of death and the very extinguishing of life itself, which may so many ways be wrought outwardly and inwardly (which, notwithstanding, have, as it were, one common porch before it comes to the point of death), will be pertinent to be inquired of in this treatise ; but we reserve that for the last place.

That which may be repaired by degrees, without a total

waste of the first stock, is potentially eternal : as the vestal fire. Therefore, when physicians and philosophers saw that living creatures were nourished, and their bodies repaired, but that this did last only for a time, and afterwards came old age, and, in the end, dissolution ; they sought death in somewhat which could not properly be repaired, supposing a radical moisture incapable of solid reparation, and which, from the first infancy, received a spurious addition, but no true reparation, whereby it grew daily worse and worse, and in the end brought the bad to none at all. This conceit of theirs was both ignorant and vain ; for all things, in living creatures, are, in their youth, repaired entirely ; nay, they are, for a time, increased in quantity, bettered in quality, so as the matter of reparation might be eternal, if the manner of reparation did not fail. But this is the truth of it : there is, in the declining of age, an unequal reparation ; some parts are repaired easily, others with difficulty and to their loss ; so, as from that time the bodies of men begin to endure the torments of Mesentius—that the living die in the embraces of the dead. And the parts easily reparable, through their conjunction with the parts hardly reparable, do decay. For the spirits, blood, flesh, and fat are, even after the decline of years, easily repaired ; but the drier and more porous parts (as the membranes, all the tunicles, the sinews, arteries, veins, bones, cartilages, most of the bowels, in a word, almost all the organical parts), are hardly reparable, and to their loss. Now these hardly reparable parts, when they come to their office of repairing the other which are easily reparable, finding themselves deprived of their wonted ability and strength, cease to perform any longer their proper functions ; by which means it comes to pass that in process of time the whole tends to dissolution ; and even those very parts, which in their own nature are with much ease reparable, yet through the decay of the organs of reparation can no more receive reparation, but decline, and in the end utterly fail. And the cause of the termination of life is this : for that the spirits, like a gentle flame, continually preying upon bodies, conspiring with the outward air, which is ever sucking and drying of them, do in time destroy the whole fabric of the body, as also the particular engines and organs thereof, and make them unable for the work of reparation. These are the true ways of natural death well and faithfully to be revolved in our minds : for he that knows not the ways of nature, how can he succour her or turn her about ?

Therefore, the inquisition ought to be twofold: the one, touching the consumption or depredation of the body of man; the other, touching the reparation and renovation of the same; to the end that the former may, as much as possible, be forbidden and restrained, and the latter comforted. The former of these pertains especially to the spirits and outward air, by which the depredation and waste is committed; the latter to the whole race of alimentation or nourishment, whereby the renovation or restitution is made. And as for the former part, touching consumption, this hath many things common with bodies inanimate or without life. For such things as the native spirit (which is in all tangible bodies, whether living or without life), and the ambient or external air, worketh upon bodies inanimate; the same it attempteth upon animate or living bodies, although the vital spirit superadded doth partly break and bridle those operations, partly exalt and advance them wonderfully. For it is most manifest that inanimate bodies (most of them) will endure a long time without any reparation; but bodies animate, without food and reparation, suddenly fall and are extinguished as the fire is. So, then, our inquisition shall be double: first, we will consider the body of man as inanimate, and not repaired by nourishment; secondly, as animate, and repaired by nourishment. Thus, having prefaced these things, we come now to the topic places of inquisition.

This 'History of Life and Death' is by far the most curious of these Natural Histories compiled by Bacon. Our space, however, will not allow us to extend the following extracts, which we continue to take from the translation published by Rawley:—

Let this be laid for a foundation, which is most sure: that there is, in every tangible body, a spirit or body pneumatical, enclosed and covered with the tangible parts; and that from this spirit is the beginning of all dissolution and consumption, so as the antidote against them is the detaining of this spirit.

Johannes de Temporibus, among all the men of our latter ages, out of a common fame and vulgar opinion, was reputed long-lived, even to a miracle, or rather, even to a fable; his age hath been counted above three hundred years; he was by nation a Frenchman, and followed the wars under Charles the

Great. Gartius Aretine, great-grandfather to Petrarch, arrived at the age of an hundred and four years; he had ever enjoyed the benefit of good health: besides, at the last he felt rather a decay of his strength than any sickness or malady, which is the true resolution by old age. Amongst the Venetians there have been found not a few long-livers, and those of the more eminent sort: Franciscus Donatus, Duke; Thomas Contareus, Procurator of Saint Mark; Franciscus Molinus, Procurator also of Saint Mark; and others. But most memorable is that of Cornarus, the Venetian, who, being in his youth of a sickly body, began first to eat and drink by measure to a certain weight, thereby to recover his health; this cure turned, by use, into a diet, that diet to an extraordinary long life, even of a hundred years and better, without any decay in his senses, and with a constant enjoying of his health. In our age, William Postel, a Frenchman, lived to an hundred and well nigh twenty years; the top of his beard on the upper lip being black, and not grey at all, a man crazed in his brain, and of a fancy not altogether sound, a great traveller, mathematician, and somewhat stained with heresy.

I suppose there is scarce a village with us in England, if it be any whit populous, but it affords some man or woman of fourscore years of age. Nay, a few years since, there was, in the county of Hereford, a May-game or morris-dance, consisting of eight men, whose ages computed together made up eight hundred years; insomuch that what some of them wanted of an hundred others exceeded as much.

In the Hospital of Bethleem, corruptly called Bedlam, in the suburbs of London, there are found, from time to time, many mad persons that live to a great age.

Not only the goodness or pureness of the air, but also the equality of the air is material to long life. Intermixture of hills and dales is pleasant to the sight, but suspected for long life. A plain moderately dry, but yet not over-barren or sandy, nor altogether without trees and shade, is very convenient for length of life.

Inequality of air (as was even now said) in the place of our dwelling is naught; but change of air by travelling, after one be used unto it, is good; and therefore great travellers have been long-lived. Also those that have lived perpetually in a little cottage, in the same place, have been long-livers; for air accustomed, consumeth less; but air changed, nourisheth and repaireth more.

Fair in face, or skin, or hair, are shorter livers; black, or red, or freckled, longer. Also, too fresh a colour in youth doth less promise long life than paleness. A hard skin is a sign of long life rather than a soft; but we understand not this of a rugged skin, such as they call the goose-skin, which is as it were spongy, but of that which is hard and close. A forehead with deep furrows and wrinkles is a better sign than a smooth and plain forehead.

The hairs of the head hard, and like bristles, do betoken longer life than those that are soft and delicate. Curled hairs betoken the same thing if they be hard withal, but the contrary if they be soft and shining. The like, if the curling be rather thick than in large bunches.

Early or late baldness is an indifferent thing: seeing many which have been bald betimes have lived long. Also, early grey hairs (howsoever they may seem forerunners of old age approaching) are no sure signs; for many that have grown grey betimes have lived to great years. Nay, hasty grey hairs, without baldness, is a token of long life; contrarily, if they be accompanied with baldness.

Tallness of stature (if it be not immoderate) with convenient making, and not too slender, especially if the body be active withal, is a sign of long life. Also, on the contrary, men of low stature live long, if they be not too active and stirring.

In the proportion of the body, they which are short to the waist, with long legs, are longer lived than they which are long to the waist and have short legs; also, they which are large in the nether parts, and straight in the upper (the making of their body rising, as it were, into a sharp figure), are longer lived than they that have broad shoulders and are slender downwards.

Leanness, where the affections are settled, calm, and peaceable, also a more fat habit of body, joined with choler, and a disposition stirring and peremptory, signify long life; but corpulency in youth foreshows short life; in age it is a thing more indifferent.

To be long and slow in growing is a sign of long life; if to a greater stature, the greater sign: if to a lesser stature, yet a sign, though. Contrarily, to grow quickly to a great stature is an evil sign; if to a small stature, the less evil.

Firm flesh, a raw-boned body, and veins lying higher than the flesh, betoken long life; the contrary to these, short life.

A head somewhat lesser than to the proportion of the

body; a moderate neck, not long, nor slender, nor fat, nor too short; wide nostrils, whatsoever the form of the nose be; a large mouth; an ear grisly, not fleshy; teeth strong and contiguous, small or thin set, foretoken long-life; and much more, if some new teeth put forth in our elder years.

Certainly this is, without all question, that diet well ordered bears the greatest part in the prolongation of life: neither did I ever meet an extreme long-lived man, but being asked of his course he observed something peculiar, some one thing, some another. I remember an old man above an hundred years of age, who was produced as a witness touching an ancient prescription; when he had finished his testimony, the judge familiarly asked him how he came to live so long: he answered, beside expectation, and not without the laughter of the hearers, "By eating before I was hungry, and drinking before I was dry."

I make some question touching the frequent letting of blood, whether it conduceth to long life or no; and I am rather in the opinion that it doth, if it be turned into a habit, and other things be well disposed; for it letteth out the old juice of the body, and bringeth in new.

I suppose, also, that some emaciating diseases well cured do profit to long life: for they yield new juice, the old being consumed; and (as he saith) to recover a sickness is to renew youth. Therefore, it were good to make some artificial diseases, which is done by strict and emaciating diets.

The spirits are the master-workmen of all effects in the body. This is manifest by consent and by infinite instances.

If any man could procure that a young man's spirit could be conveyed into an old man's body, it is not unlikely but this great wheel of the spirits might turn about the lesser wheel of the parts, and so the course of nature become retrograde.

In every consumption, whether it be by fire or by age, the more the spirit of the body or the heat preyeth upon the moisture the lesser is the duration of that thing. This occurs everywhere, and is manifest.

The spirits are to be put into such a temperament and degree of activity, that they should not (as he saith) drink or guzzle the juices of the body, but sip them only.

The Turks find opium, even in a reasonable good quantity, harmless and comfortable; insomuch that they take it before their battle to excite courage. But to us, unless it be in a very small quantity, and with good correctives, it is mortal.

The Turks use a kind of herb which they call Caphe, which they dry and powder, and then drink it in warm water, which, they say, doth not a little sharpen them both in their courage and in their wits ; notwithstanding, if it be taken in a large quantity it affects and disturbs the mind, whereby it is manifest that it is of the same nature with opiates.

There is a root much renowned in all the eastern parts, which they call Betel, which the Indians and others use to carry in their mouths, and to champ it, and by that champing they are wonderfully enabled both to endure labours and to overcome sicknesses, and to the act of carnal copulation ; it seems to be a kind of stupefactive, because it exceedingly blacks the teeth.

Tobacco, in our age, is immoderately grown into use, and it affects men with a secret kind of delight, insomuch that they who have once inured themselves unto it can hardly afterwards leave it ; and, no doubt, it hath power to lighten the body, and to shake off weariness. Now the virtue of it is commonly thought to be because it opens the passages and voids humours ; but it may more rightly be referred to the condensation of the spirits, for it is a kind of henbane, and manifestly troubles the head as opiates do.

It is affirmed that gunpowder, which consisteth principally of nitre, being taken in drink doth conduce to valour, and that it is used oftentimes by mariners and soldiers before they begin their battles, as the Turks do opium.

As the condensation of the spirits by subordinates to opium is, in some sort, performed by odours, so also that which is by subordinates to nitre ; therefore the smell of new and pure earth, taken either by following the plough, or by digging, or by weeding, excellently refresheth the spirits. Also the leaves of trees in woods or hedges, falling towards the middle of autumn, yield a good refreshing to the spirits : but none so good as strawberry-leaves dying. Likewise the smell of violets, or wall-flowers, or bean-flowers, or sweet-briar, or honey-suckles, taken as they grow, in passing by them only, is of the same nature.

Nay, and we know a certain great lord who lived long, that had every morning, immediately after sleep, a clod of fresh earth, laid in a fair napkin, under his nose, that he might take the smell thereof.

These procure quiet sleep : violets, lettuce, especially boiled, syrup of dried roses, saffron, balm, apples, at our going to bed, a sop of bread in malmsey, especially where musk-roses have been first infused ; therefore, it would not be amiss to make

some pill or a small draught of those things, and to use it familiarly. Quinces and wardens roasted do induce sound sleep; but above all things, in youth, and for those that have sufficient strong stomachs, it will be best to take a good draught of clear cold water when they go to bed.

Hope is the most beneficial of all the affections, and doth much to the prolongation of life, if it be not too often frustrated, but entertaineth the fancy with an expectation of good. Therefore, they which fix and propound to themselves some end as the mark and scope of their life, and continually and by degrees go forward in the same, are, for the most part, long-lived; insomuch, that when they are come to the top of their hope and can go no higher therein, they commonly droop, and live not long after; so that hope is a leaf-ivy, which may be beaten out to a great extension, like gold.

Admiration and light contemplation are very powerful to the prolonging of life, for they hold the spirits in such things as delight them, and suffer them not to tumultuate or to carry themselves unquietly and waywardly. And, therefore, all the contemplators of natural things, which had so many and so eminent objects to admire (as Democritus, Plato, Parmenides, Apollonius) were long-lived; also rhetoricians, which tasted but lightly of things, and studied rather exornation of speech than profundity of matters, were also long-lived: as Gorgias, Protagoras, Isocrates, Seneca; and certainly, as old men are, for the most part, talkative, so talkative men do often grow very old, for it shows a light contemplation, and such as doth not much strain the spirits or vex them; but subtle and acute and eager inquisition shortens life, for it tireth the spirit and wasteth it.

Ficinus saith not unwisely, that old men, for the comforting of their spirits, ought often to remember and ruminate upon the acts of their childhood and youth. Certainly, such a remembrance is a kind of peculiar recreation to every old man; and therefore it is a delight to men to enjoy the society of them which have been brought up together with them, and to visit the places of their education. Vespasian did attribute so much to this matter, that when he was emperor he would, by no means, be persuaded to leave his father's house, though but mean, lest he should lose the wonted object of his eyes, and the memory of his childhood; and besides, he would drink in a wooden cup tipped with silver, which was his grandmother's, upon festival days.

One thing, above all, is grateful to the spirits: that there be a continual progress to the more benign. Therefore we should lead such a youth and manhood that our old age should find new solaces, whereof the chief is moderate ease. And therefore old men in honourable places lay violent hands upon themselves, who retire not to their ease; whereof may be found an eminent example in Cassiodorus, who was of that reputation amongst the Gothish kings of Italy, that he was as the soul of their affairs. Afterwards, being near eighty years of age, he betook himself to a monastery, where he ended not his days before he was an hundred years old. But this thing doth require two cautions: one, that they drive not off till their bodies be utterly worn out and diseased, for in such bodies all mutation, though to the more benign, hasteneth death; the other, that they surrender not themselves to a sluggish ease, but that they embrace something which may entertain their thoughts and mind with contentation: in which kind the chief delights are reading and contemplation, and then the desires of building and planting.

The ancient Britons painted their bodies with woad, and were exceeding long-lived: the Picts also used paintings, and are thought by some to have derived their name from thence.

The Brazilians and Virginians paint themselves at this day; who are (especially the former) very long-lived; inso-much, that five years ago the French Jesuits had speech with some who remembered the building of Fernamburgh, which was done an hundred and twenty years since, and they were then at man's estate.

Johannes de Temporibus, who is reported to have extended his life to three hundred years, being asked how he preserved himself so long, is said to have answered, By oil without, and by honey within.

The Irish, especially the wild Irish, even at this day live very long. Certainly they report that within these few years the Countess of Desmond lived to a hundred and forty years of age, and bred teeth three times. Now, the Irish have a fashion to chafe, and, as it were, to baste themselves with old salt-butter against the fire.

The same Irish use to wear saffroned linen and shirts, which, though it was at first devised to prevent vermin, yet, howsoever, I take it to be very useful for lengthening of life; for saffron, of all things that I know, is the best thing for the skin

and the comforting of the flesh : seeing that it is both notably astringent, and hath, besides, an oleosity and subtil heat, without any acrimony. I remember a certain Englishman who, when he went to sea, carried a bag of saffron next his stomach, that he might conceal it and so escape custom : and whereas he was wont to be always exceeding sea-sick, at that time he continued very well, and felt no provocation to vomit.

Hippocrates adviseth in winter to wear clean linen, and in summer foul linen and besmeared with oil ; the reason may seem to be, because in summer the spirits exhale most, therefore the pores of the skin would be filled up.

Hereupon we are of opinion that the use of oil, either of olives or sweet almonds, to anoint the skin therewith, would principally conduce to long life : the anointing would be done every morning, when we rise out of bed, with oil in which a little bay-salt and saffron is mixed. But this anointing must be lightly done with wool or some soft sponge, not laying it on thick, but gently touching and wetting the skin.

The wild Irish, as soon as they fall sick, the first thing they do is to take the sheets off their beds, and to wrap themselves in the woollen clothes.

Some report that they have found great benefit in the conservation of their health by wearing scarlet waistcoats next their skin and under their shirts, as well down to their nether parts as on the upper.

As for the bread, oaten bread, or bread with some mixture of peas in it, or rye-bread, or barley-bread, are more solid than wheat-bread ; and in wheat-bread the coarse cheat-bread is more solid than the pure manchet.

The inhabitants of the Orcades, which live upon salted fish, and generally all fish-eaters, are long-lived.

The monks and hermits, which fed sparingly and upon dry aliment, attained commonly to a great age.

Also pure water, usually drunk, makes the juices of the body less frothy ; unto which, if for the dulness of the spirits (which, no doubt, in water is but a little penetrative) you shall add a little nitre, we conceive it would be very good.

I wonder much how that same calidum bibere, to drink warm drink (which was in use among the ancients), is laid down again. I knew a physician that was very famous, who, in the beginning of dinner and supper, would usually eat a few spoonfuls of very warm broth with much greediness.

I do verily conceive it good that the first draught, either

of wine or ale, or any other drink (to which a man is most accustomed) be taken at supper warm.

Wine, in which gold hath been quenched, I conceive would be very good once in a meal; not that I believe the gold conferreth any virtue thereunto, but that I know that the quenching of all metals in any kind of liquor, doth leave a most potent astringency; now I choose gold, because besides that astringency which I desire, it leaveth nothing else behind it of a metalline impression.

I am of opinion that sops of bread, dipped in wine, taken at the midst of the meal, are better than wine itself, especially if there were infused into the wine in which the sops were dipped, rosemary and citron-peel, and that with sugar, that it may not slip too fast.

Principally, let there be in use the wine of sweet pomegranates; or, if that cannot be had, the juice of them newly expressed; let it be taken in the morning with a little sugar, and into the glass into which the expression is made, put a small piece of citron-peel green, and three or four whole cloves. Let this be taken from February till the end of April.

Bring also into use, above all other herbs, water-cresses, but young, not old; they may be used either raw in salads, or in broths, or in drinks: and after that take spoonwort.

We commend, above all others (as we have touched before), odour of plants growing, and not plucked, taken in the open air: the principal of that kind are violets, gilliflowers, pinks, bean-flowers, lime-tree blossoms, vine-buds, honeysuckles, yellow wallflowers, musk-roses (for other roses growing are fast of their smells), strawberry-leaves, especially dying, sweet-briar, principally in the early spring, wild mint, lavender flowered; and in the hotter countries, orange-tree, citron-tree, myrtle, laurel. Therefore, to walk or sit near the breath of these plants would not be neglected.

But champing (though we have no betel) or holding in the mouth only of such things as cheer the spirits (even daily done) is exceeding comfortable. Therefore, for that purpose make grains or little cakes of ambergris, musk, lignum, aloes, lignum rhodium, orris powder, and roses; and let those grains or cakes be made up with rose-water which hath passed through a little Indian balsam.

Out of that unprofitable rabble of cordials a few ought to be taken into daily diet. Instead of all, ambergris, saffron, and the grain of kermes of the hotter sort, roots of

buglosse and borage, citrons, sweet lemons, and permaines of the colder sort. Also that way which we said, both gold and pearls work a good effect, not only within the veins, but in their passage and about the parts near the heart; namely, by cooling, without any malignant quality.

Of the affections we have spoken before, we only add this: that every noble and resolute, and (as they call it) heroical desire, strengtheneth and enlargeth the powers of the heart.

As for the brain, where the seat and court of the animal spirits is kept, those things which were inquired before, touching opium and nitre, and the subordinates to them both, also touching the procuring of placid sleep, may likewise be referred hither. This also is most certain, that the brain is in some sort in the custody of the stomach; and therefore those things which comfort and strengthen the stomach, do help the brain by consent, and may no less be transferred hither. We will add a few observations; three outward, one inward.

We would have bathing of the feet to be often used; at least once in the week; and the bath to be made of lye, with bay-salt, and a little sage, camomile, fennel, sweet-margoram, and pepper-wort, with the leaves of angelica, green.

We commend also a fume, or suffumigation, every morning, of dried rosemary, bay-leaves dried, and lignum aloes; for all sweet gums oppress the head.

Especially care must be taken that no hot things be applied to the head outwardly; such are all kind of spices, the very nutmeg not excepted: for those hot things we debase them to the soles of the feet, and would have them applied there only; but a light anointing of the head with oil, mixed with roses, myrtle, and a little salt, and saffron, we much commend.

Whereas we advised before that the first draught at supper should be taken warm, now we add, that for the preparation of the stomach, a good draught of that liquor (to which every man is most accustomed) be taken warm half an hour before meat also, but a little spiced to please the taste.

That which is most consubstantial to the body of man is warm blood, either of man or of some other living creature; but the device of Ficinus, touching the sucking of blood out of the arm of a wholesome young man, for the restoration of strength in old men, is very frivolous; for that which nourisheth from within ought no way to be equal or homogeneous to the body-nourished, but in some sort inferior and subor-

dinate, that it may be converted; but in things applied outwardly, by how much the substance is liker, by so much the consent is better.

It hath been anciently received that a bath made of the blood of infants will cure the leprosy, and heal the flesh already putrified; insomuch that this thing hath begot envy towards some kings from the common people.

It is reported that Heraclitus, for cure of the dropsy, was put into the warm belly of an ox newly slain.

They use the blood of kittlins warm to cure the disease called Saint Anthony's fire; and to restore the flesh and skin.

An arm or other member newly cut off, or that upon some other occasion will not leave bleeding, is, with good success, put into the belly of some creature newly ripped up, for it worketh potently to stanch the blood; the blood of the member cut off, by consent sucking in, and vehemently drawing to itself the warm blood of the creature slain, whereby itself is stopped and retireth.

It is much used in extreme and desperate diseases to cut in two young pigeons yet living and apply them to the soles of the feet; and to shift them one after another, whereby sometime there followeth a wonderful ease. This is imputed vulgarly as if they should draw down the malignity of the disease; but howsoever this application goeth to the head and comforteth the animal spirits.

There hath gone a report almost undoubted, and that under several names, of certain men that had great noses, who being weary of the derision of people, have cut off the bunches or hillocks of their noses, and then making a wide gash in their arms, having held their noses in the place for a certain time, and so brought forth fair and comely noses; which if it be true, it shows plainly the consent of flesh unto flesh, especially in live flesh.

Eels, serpents, and the insects, will move a long time in every part after they are cut asunder, insomuch that country people think that the parts strive to join together again. Also birds will flutter a great while after their heads are pulled off; and the hearts of living creatures will pant a long time after they are plucked out. I remember I have seen the heart of one that was bowelled, as suffering for high treason, that being cast into the fire, leaped at the first, at least a foot and half in height; and after by degrees lower and lower, for the space, as we remember, of seven or eight minutes. There is also an

ancient and credible tradition of an ox lowing after his bowels were plucked out. But there is a more certain tradition of a man, who being under the executioner's hand for high treason, after his heart was plucked out and in the executioner's hand, was heard to utter three or four words of prayer; which therefore we said to be more credible than that of the ox in sacrifice, because the friends of the party suffering do usually give a reward to the executioner to dispatch his office with the more speed, that they may the sooner be rid of their pain; but in sacrifices we see no cause why the priest should be so speedy in his office.

There have been many examples of men in show dead, either laid out upon the cold floor, or carried forth to burial; nay, of some buried in the earth which, notwithstanding, have lived again, which hath been found in those that were buried (the earth being afterwards opened), by the bruising and wounding of their head through the struggling of the body within the coffin, whereof the most recent and memorable example was that of Joannes Scotus, called the subtle, and a schoolman, who, being digged up again by his servant, unfortunately absent at his burial (and who knew his master's manner in such fits), was found in that state; and the like happened in our days in the person of a player, buried at Cambridge. I remember to have heard of a certain gentleman that would needs make trial in curiosity what men did feel that were hanged; so he fastened the cord about his neck, raising himself upon a stool, and then letting himself fall, thinking it should be in his power to recover the stool at his pleasure, which he failed in, but was helped by a friend then present. He was asked afterwards what he felt. He said, he felt no pain, but first he thought he saw before his eyes a great fire, and burning; then he thought he saw all black, and dark; lastly, it turned to a pale blue, or sea-water green, which colour is also often seen by them which fall into swoonings. I have heard also of a physician yet living, who recovered a man to life which had hanged himself, and had hanged half an hour, by frictions and hot baths; and the same physician did profess that he made no doubt to recover any man that had hanged so long, so his neck were not broken with the first swing.

I remember, when I was a young man at Poitiers, in France, I conversed familiarly with a certain Frenchman, a witty young man, but something talkative, who afterwards grew to be a very eminent man. He was wont to inveigh

against the manners of old men, and would say, that if their minds could be seen, as their bodies are, they would appear no less deformed; besides, being in love with his own wit, he would maintain that the vices of old men's minds have some correspondence, and were parallel to the putrefactions of their bodies. For the dryness of their skin he would bring in impudence; for the hardness of their bowels, unmercifulness; for the lippitude of their eyes, an evil eye, and envy; for the casting down of their eyes and bowing their body towards the earth, atheism (for, saith he, they look no more up to heaven as they were wont); for the trembling of their members, irresolution of their decrees and light inconstancy; for the bending of their fingers, as it were to catch, rapacity and covetousness; for the buckling of their knees, fearfulness; for their wrinkles, craftiness and obliquity, and other things which I have forgotten. But, to be serious, a young man is modest and shamefaced, an old man's forehead is hardened; a young man is full of bounty and mercy, an old man's heart is brawny; a young man is affected with a laudable emulation, an old man with a malignant envy; a young man is inclined to religion and devotion by reason of his fervency and inexperience of evil, an old man cooleth in piety through the coldness of his charity and long conversation in evil, and likewise through the difficulty of his belief; a young man's desires are vehement, an old man's moderate; a young man is light and moveable, an old man more grave and constant; a young man is given to liberality, and beneficence, and humanity, an old man to covetousness, wisdom for his own self, and seeking his own ends; a young man is confident and full of hope, an old man diffident, and given to suspect most things; a young man is gentle and obsequious, an old man froward and disdainful; a young man is sincere and open-hearted, an old man cautelous and close; a young man is given to desire great things, an old man to regard things necessary; a young man thinks well of the present times, an old man preferreth times past before them; a young man reverenceth his superiors, an old man is more forward to tax them, and many other things which pertain rather to manners than to the present inquisition. Notwithstanding, old men as in some things they improve in their bodies, so also in their minds, unless they be altogether out of date, namely, that as they are less apt for invention, so they excel in judgment, and prefer safe things and sound things before specious; also they improve in garrulity and ostentation, for they seek the fruit of speech,

while they are less able for action; so as it was not absurd that the poets feigned old Tithon to be turned into a grasshopper.

The treatise concludes with Thirty-two Moveable Canons (*Canones Mobiles*) respecting the Duration of Life and the Form (or Nature) of Death, each accompanied by a long explanation. The English translation published by Rawley in 1658 was reprinted with every succeeding edition of the *Sylva*; and the two works thus associated seem to have continued to be a favourite manual with our ancestors down to nearly the close of the seventeenth century.

After the *History of Life and Death* the modern editors of the *Instauration* have placed certain other short and for the most part unfinished physical investigations, which it will be sufficient merely to enumerate. The *History of Sound and of Hearing* ('*Historia et Inquisitio Prima de Sono et Auditū, et de Forma Soni et Auditus*') was first published by Rawley in the '*Opuscula Varia Posthuma*' (1658). Bacon's notions about Sound are given more fully in the *Sylva Sylvarum*. The *Articles respecting Metals* ('*Articuli de Metallis*') were also first published in Latin in the same volume; but it appears that in this form the piece was a translation by Rawley from Bacon's English. Rawley himself afterwards gave the original English to Lee, the publisher of the *Sylva Sylvarum*, and it was published along with that work, with the title of '*Articles of Inquiry touching Metals*,' in folio, in 1662. Tenison does not appear to have been aware of this when he reprinted it in the *Baconiana* (1679), with the title of '*Articles of Questions touching Minerals*;' written originally in English by the Lord Bacon, yet hitherto not published in that language.' In his *Introduction* Tenison says:—"These Questions were turned into Latin, and in that tongue published by Dr. Rawley amongst his Lordship's *Opuscula*; but the English originals are now the first time set forth. And, having by me three copies, I publish them by that one on which his Lordship had endorsed with his own hand, *This is the clean copy*." He adds:—"Now, these

Inquiries being in themselves imperfect, and without much solution of his Lordship's adjoined, I have here added to them the several answers of Dr. Meverel, to whom they were proposed by his Lordship. It has not been in my power as yet to inform myself duly about this Doctor; but doubtless he was a chymist, as those times went, of the first order. It was his Lordship's manner, on divers mornings, to set down inquiries for the following days in some loose papers. And in one of them I find this, among other memoranda: 'To send to Dr. Meverel. Take iron and dissolve it in aquafortis, and put a loadstone near it, and see whether it will extract the iron; put also a loadstone into the water, and see whether it will gather a crust about it.' To the *Articles* is attached an *Inquiry respecting the Magnet* ('Inquisitio de Magnete'), which is likewise in the *Opuscula Posthuma*, but not in the *Baconiana*. It is remarkable, however, that the very first paragraph contains an answer to the question which Tenison found noted down upon the loose paper to be put to Meverel: "Si vero ferrum dissolvatur," &c., that is, "If iron be dissolved in aquafortis, and some drops of the solution be placed upon smooth glass, the magnet neither extracts the iron nor attracts the water." Bacon had apparently satisfied himself upon the point without sending to his chymical friend. Then comes a very short fragment on the *Transmutation of Bodies* ('Inquisitio de Versionibus, Transmutationibus, Multiplicationibus, et Effectationibus Corporum'), also first published in Latin in the *Opuscula Posthuma*, but written, it seems, by Bacon in English, and in that original form first published in the *Baconiana*. Lastly, we have certain *Topics of Inquiry respecting Light* ('Topica Inquisitionis de Luce et Lumine'), likewise from Rawley's volume, and also previously published by Gruter. The substance of all these tracts may probably be incorporated somewhere in Shaw's translation and re-arrangement of the Philosophical Works; but, as he rarely notes whence he has taken his materials, it is difficult to find the passages that are intended to correspond in his English and Bacon's Latin. The sub-

jects to which these fragments relate, however, have all been treated of by Bacon at greater length in other parts of his writings.

The next portion of the Third Part of the *Instauration*, as it has been arranged, consists of a number of pieces first published by Gruter in the 'Scripta in Naturali et Universali Philosophia' (1653). The first of these, which Gruter prints on the back of his title-page, is strangely headed 'Temporis Partus Masculus, sive Instauration Magna Imperii Humani in Universum;' that is, 'The Male Offspring of Time, or Great Restoration of the Empire of Man over the Universe.' It has been suggested that the reading should probably be 'Temporis Partus Maximus' (The Greatest Birth of Time), which, in a Letter to Father Fulgentio written in 1623 or 1624, Bacon says was the magnificent title he had in his youthful confidence given to a work he had composed on his method of philosophy forty years before. But, at all events, the fragment to which Gruter prefixes the title is nothing more than a Latin translation of the short address to the Deity which Tenison has published in the original English in the *Baconiana*, under the title, given to it, he says, by Bacon himself, of 'The Student's Prayer,' and which is introduced, nearly in the same words given by Gruter, in one of the paragraphs of the Preface published along with the *Novum Organum* in 1620.* Then we have several pieces from the latter portion of Gruter's volume in the following order:— 'Franciscus Bacon Lectori,' a few general remarks by Bacon on the spirit of his philosophy; 'Filum Labyrinthi, sive Inquisitio Legitima de Motu' (The Thread of the Labyrinth, or a Legitimate Inquisition respecting Motion); 'Cogitationes de Natura Rerum' (Speculations on the Nature of Things), being Ten in all, namely, On the Section of Bodies, On the Equality and Inequality of Atoms, On the negligence of the Ancients in their Inquiries respecting Motion, On the inutility of the vulgar division of Motion, On the certainty (or con-

* See it in the present work, vol. i. p. 167.

stancy) in the Quantity of Matter, On apparent Quiet, Consistency, and Fluidity, On the Accordance that there is between Bodies endowed with feeling and those not so endowed, On violent Motion, that it is a flight and running in different directions of the parts of a thing by reason of pressure, though the pressure may not be very visible, On the cause of Motion in Guns, and On the dissimilitude between the Celestial and Sublunary Bodies in respect of endurance and mutability. All these pieces, which are for the most part translated or abstracted in Shaw, are styled by Gruter *Impetus Philosophici* (Dashes at Philosophy, as it may be rendered), that, he says, being the name given to them by Bacon himself when they talked about them together; for so, he adds, he used to call whatsoever was connected with the dissertations standing first in the volume and distinguished each by its own title ("quicquid prioribus per titulos suos separatim connecteretur"), that the reader may not at once suspect that to be unfinished, which, from the decline of the impetus he may not feel to possess the continuity of a complete discussion (*prolixæ tractationis*). This explanation may not be thought particularly luminous; and it is rendered the more obscure from the careless blundering way in which Gruter's volume is printed, in which even the running titles on many of the pages are wrong; but we give it as we have it. Finally, there is added a disquisition on the *Flowing and Ebbing of the Tide* ('De Fluxu et Refluxu Maris'), which is taken from the middle of Gruter's volume, and is, as it should seem, one of the more elaborate dissertations, with distinct titles, to which the *Impetus* are to be considered as appendices. This is also translated by Shaw, who out of it and several of the other last-mentioned pieces constructs for himself a Fifth Part of the *Instauration*.

Here is Shaw's translation of the Ninth Chapter of the 'Cogitationes de Natura Rerum':—

Of the Cause of the Motion of Explosion in Guns and Gunpowder.

The phenomenon of gunpowder, and the cause of explosion, though so powerful and noble a motion, have been hitherto

very imperfectly explained, and that too in the least considerable part. They pretend that gunpowder, when converted and rarefied into flame, dilates itself, and possesses a larger space, from whence follows the explosion or bursting of the obstructing body; but otherwise two bodies should be in one place, or a penetration of dimensions ensue, or the form of the element be destroyed, or the situation of the parts of the resisting body become preternatural. There is something in this, for the appetite and passion of matter here mentioned have some share in producing the effect; but the error lies in too hastily bringing the whole to a necessity of the body's dilating, without distinctly considering what precedes it in nature. For though it be necessary that the body of the powder, after it is converted into flame, should possess a greater space, yet it is not of the same necessity that the body of the powder should take flame, and that with such rapidity; but this depends upon the preceding conflict, and a train of motions. For doubtless the solid and ponderous body or bullet discharged makes a strong resistance before it yields; and if this resistance be great it must needs prevail, so as that the flame shall not drive out the bullet, but the bullet stifle the flame. Therefore, if instead of gunpowder we were to use sulphur, camphor, or the like bodies, which also suddenly catch flame, and because compactness hinders inflammability, if these materials were formed into corns of powder, with a proper proportion of the most combustible wood-coal, yet if nitre were not employed in the composition there would follow no such rapid and powerful motion as in gunpowder; but the motion of inflammation would be checked and kept down by the resistance of the bullet, and so the event be frustrated or no explosion be made.

The case seems to be this. The motion here inquired after is double and compounded, for besides the motion of inflammation, which principally resides in the sulphur of the powder, there is another more strong and violent. This chiefly proceeds from the crude and aqueous spirit of the nitre, and somewhat again from the willow coal. For this spirit is not only expanded, as vapours are by heat, but, what is here the principal thing, flies away and bursts forth with the utmost violence from the heat and inflammation, for which it thus opens and prepares the way. We see some resemblance of this motion in the crackling of dry bay or ivy leaves when thrown into the fire; and still more evidently in salt, which approaches nearer to the nature of the thing under consideration: we also find somewhat like it when the tallow of a burning candle

happens to be wet, and frequently in the flatulent flames of green wood. But a capital instance of this motion appears in quicksilver, which is an extremely crude body, and like a metallic water, the force whereof when close confined and excited by the fire, is little inferior to, or perhaps stronger than, that of gunpowder. From this example, therefore, men are to be admonished and entreated not suddenly to seize upon any one thing in the inquiry after causes, and hastily pronounce from it, but to cast about and fix their speculations deep and strong.

But, besides these treatises in Latin, we must consider as also belonging to the Third Part of the Instauration the voluminous work, written by Bacon in English, entitled '*Sylva Sylvarum*, or A Natural History, in Ten Centuries.' This was first published by Dr. Rawley in 1627, the year after Bacon's death, with a Dedication to the King, Charles I., and a Preface, or address 'To the Reader,' having at the end the following note:—"This Epistle is the same that should have been prefixed to this book if his lordship had lived." The work, we may therefore assume, had been left by Bacon ready for the press.

The Dedication, which is very short, has been removed from the later editions of the *Sylva*; Mr. Montagu has neither reprinted it nor even noticed its existence; but it is of some interest at least in reference to the bibliography of Bacon's writings. "May it please your most excellent Majesty," it begins, "the whole body of the Natural History, either designed or written by the late Lord Viscount St. Alban, was dedicated to your majesty in the book *De Ventis*, about four years past, when your majesty was Prince: so as there needed no new Dedication of this work, but only in all humbleness to let your majesty know it is yours. It is true, if that lord had lived, your majesty ere long had been invoked to the protection of another History; whereof, not Nature's Kingdom, as in this, but these of your Majesty's (during the time and reign of King Henry the Eighth) had been the subject: which, since it died under the designation merely, there is nothing left but your majesty's princely goodness graciously to accept

of the undertaker's heart and intentions." Here, then, we are distinctly authorized to consider the Dedication prefixed to the *De Ventis* as intended to serve for the whole of the Third Part of the *Instauration*. It appears probable, too, from the manner in which the *History of the Reign of Henry the Eighth* is mentioned, that the mere commencement of that work which still exists is all of it that ever was prepared.*

In the Preface Rawley, after stating that he had had the honour to be continually with his lordship in the compiling of the work, and to be employed therein, proceeds:—"I have heard his lordship often say, that, if he should have served the glory of his own name, he had been better not to have published this Natural History; for it may seem an undigested heap of particulars, and cannot have that lustre which books cast into methods have; but that he resolved to prefer the good of men, and that which might best secure it, before any thing that might have relation to himself. . . . Besides, this Natural History was a debt of his, being designed and set down for a Third Part of the *Instauration*. . . . He hopeth by this means to acquit himself of that for which he taketh himself in a sort bound, and that is, the advancement of all learning and sciences. For, having in this present work collected the materials for the building, and in his *Novum Organum*, of which his lordship is yet to publish a Second Part, set down the instruments and directions for the work, men shall now be wanting to themselves if they raise not knowledge to that perfection whereof the nature of mortal men is capable. And in this behalf I have heard his lordship speak complainingly that his lordship, who thinketh he deserveth to be an architect in this building, should be forced to be a workman and a labourer, and to dig the clay and burn the brick;

* See the present work, vol. i. pp. 212, 213. But this Dedication would induce us to withdraw the conjecture there hazarded, that more of the History was probably written than the fragment that has come down to us.

and, more than that, according to the hard condition of the Israelities at the latter end, to gather the straw and stubble over all the fields to burn the bricks withal." A few sentences are added in defence of the contents and form of the work:—"His lordship hath often in his mouth the two kinds of experiments, *experimenta fructifera* and *experimenta lucifera*, experiments of use and experiments of light; and he reporteth himself whether he were not a strange man that should think that light hath no use because it hath no matter. . . . I have heard his lordship say also, that one great reason why he should not put these particulars into any exact method, though he that looketh attentively into them shall find that they have a secret order, was, because he conceived that other men would now think that they could do the like, and so go on with a further collection; which, if the method had been exact, many would have despaired to attain by imitation. . . . I will conclude with a usual speech of his lordship's: That this work of his Natural History is the world as God made it, and not as men have made it; for that it hath nothing of imagination."

The *Sylva Sylvarum*, Tenison states, "was translated by an obscure interpreter into French, and out of that translation into Latin by James Gruter, in such ill manner that they darkened his lordship's sense and debased his expression." Gruter's Latin translation was published in Holland, in 12mo., in 1648. "James Gruter," Tenison adds, "was sensible of his miscarriage, being kindly advertised of it by Dr. Rawley; and he left behind him divers amendments, published by his brother Isaac Gruter in a second edition (Amstel. 16mo., 1661). Yet still so many errors have escaped, that the work requireth a third hand. Monsieur Aelius Deodatus had once engaged an able person in the translation of this book; one who could have done his lordship right, and obliged such readers as understood not the English original. He began, and went through the three first *Centuries*, and then desisted; being desired by him who set him on work to take his hand quite off from that

pen, with which he moved so slowly." The translation of the *Third Century* by this person was in possession of Tenison, who subjoins a small specimen of it; that of the two preceding *Centuries* he believed to be lost. James Gruter's translation is reprinted in the edition of Bacon's collected works ('Francisci Baconi, Baronis, &c., Opera Omnia quae extant'), published, in folio, at Frankfort in 1665.

The English work, as we have already mentioned, long continued extremely popular. No fewer than ten editions of it, all in folio, were published in the first half-century after Bacon's death. It is indeed full of curious matter; of facts, speculations, and suggestions, which must have interested readers of almost all classes. It was in this respect in physics what the *Essays* were in morals; and might be said, too, like them, to "come home to men's business and bosoms." The thousand experiments offered a variety in which every reader might find something to his taste; and an abundance, which, in those days of spare literary feeding, would last almost a lifetime. Nor has the collection by any means yet lost all its interest. The progress of science has refuted many both of the speculations and the facts in which Bacon placed his confidence; but they do not for that the less illustrate both the character of his mind and the state of science in his day. And perhaps, even in the present advanced state of our knowledge, a little light or a useful hint may here and there be derived from the work. It is now but seldom looked into,—less frequently, perhaps, than any of Bacon's other writings. Yet, besides the ingenuity and striking character of many of the observations, there are numerous passages in it having all his characteristic eloquence, all his beauty and brilliancy of expression. There is little method, for the greater part, as Rawley's Preface intimates, in the arrangement of the entries, or experiments, as they are called; but in the following specimens we have preserved the numerical designation of each for the sake of reference:—

1. Dig a pit upon the sea-shore somewhat above the high-

water mark, and sink it as deep as the low-water mark, and as the tide cometh in it will fill with water, fresh and potable. This is commonly practised upon the coast of Barbary, where other fresh water is wanting: and Cæsar knew this well when he was besieged in Alexandria; for by digging of pits in the sea-shore he did frustrate the laborious works of the enemies which had turned the sea-water upon the wells of Alexandria, and so saved his army, being then in desperation. But Cæsar mistook the cause; for he thought that all sea-sands had natural springs of fresh water; but it is plain that it is the sea-water, because the pit filleth according to the measure of the tide; and the sea-water passing or straining through the sands, leaveth the saltness.

2. I remember to have read that tial hath been made of salt-water passed through earth, through ten vessels, one within another, and yet it hath not lost its saltness as to become potable; but the same man saith that (by the relation of another) salt-water drained through twenty vessels hath become fresh. This experiment seemeth to cross that other of pits made by the sea-side; and yet but in part, if it be true, that twenty repetitions do the effect. But it is worth the note how poor the imitations of nature are, in common course of experiments, except they be led by great judgment and some good light of axioms: for first, there is no small difference between a passage of water through twenty small vessels, and through such a distance as between the low-water and high-water mark. Secondly, there is a great difference between earth and sand; for all earth hath in it a kind of nitrous salt, from which sand is more free; and besides, earth doth not strain the water so finely as sand doth. But there is a third point that I suspect as much or more than the other two; and that is, that in the experiment of transmission of the sea-water into the pits, the water riseth; but in the experiment of transmission of the water through the vessels, it falleth. Now certain it is, that the salter part of water (once salted throughout) goeth to the bottom; and therefore no marvel if the draining of water by descent doth make it fresh; besides I do somewhat doubt that the very dashing of the water that cometh from the sea, is more proper to strike off the salt part than where the water slideth of her own motion.

14. Take a glass with a belly and a long neb, fill the belly (in part) with water; take also another glass, whereinto put claret-wine and water mingled; reverse the first glass, with the

belly upwards, stopping the neb with your finger; then dip the mouth of it within the second glass and remove your finger; continue it in that posture for a time, and it will unminge the wine from the water; the wine ascending and settling in the top of the upper glass, and the water descending and settling in the bottom of the lower glass. The passage is apparent to the eye; for you shall see the wine, as it were, in a small vein, rising through the water. For handsomeness sake (because the working requireth some small time) it were good you hang the upper glass upon a nail. But as soon as there is gathered so much pure and unmixed water in the bottom of the lower glass, as that the mouth of the upper glass dippeth into it, the motion ceaseth.

16. Let the upper glass be wine and the lower water, there followeth no motion at all. Let the upper glass be water pure, the lower water coloured, or contrarywise, there followeth no motion at all; but it hath been tried, that though the mixture of wine and water in the lower glass be three parts water and but one wine, yet it doth not dead the motion. This separation of water and wine appeareth to be made by weight; for it must be of bodies of unequal weight or else it worketh not; and the heavier body must ever be in the upper glass. But then note withal that the water being made pensible, and there being a great weight of water in the belly of the glass, sustained by a small pillar of water in the neck of the glass, it is that which setteth the motion on work; for water and wine in one glass, with long standing, will hardly sever.

17. Take violets, and infuse a good pugill of them in a quart of vinegar; let them stay three-quarters of an hour, and take them forth; and refresh the infusion with like quantity of new violets seven times, and it will make a vinegar so fresh of the flower, as if a twelvemonth after it be brought you in a saucer, you shall smell it before it come at you. Note, that it smelleth more perfectly of the flower a good while after than at first.

28. It is reported by some of the ancients that whelps, or other creatures, if they be put young into such a cage or box as they cannot rise to their stature, but may increase in breadth or length, will grow accordingly as they can get room; which if it be true and feasible, and that the young creature so pressed and straightened doth not thereupon die, it is a means to produce dwarf creatures, and in a very strange figure. This is certain and noted long since, that the pressure or form-

ing of parts of creatures when they are very young, doth alter the shape not a little; as the stroking of the heads of infants between the hands, was noted of old to make Macrocephali; which shape of the head, at that time, was esteemed. And the raising gently of the bridge of the nose doth prevent the deformity of a saddle-nose: which observation well weighed may teach a means to make the persons of men and women, in many kinds, more comely and better featured than otherwise they would be, by the forming and shaping of them in their infancy; as by stroking up the calves of the legs to keep them from falling down too low; and by stroking up the forehead to keep them from being low-foreheaded. And it is a common practice to swathe infants, that they may grow more straight and better shaped; and we see young women, by wearing straight bodies, keep themselves from being gross and corpulent.

31. Take a small wax-candle and put it in a socket of brass or iron; then set it upright in a porringer full of spirit of wine heated; then set both the candle and spirit of wine on fire, and you shall see the flame of the candle open itself and become four or five times bigger than otherwise it would have been; and appear in figure globular and not in pyramis. You shall see also that the inward flame of the candle keepeth colour, and doth not wax any wit blue towards the colour of the outward flame of the spirit of wine. This is a noble instance.

32. Take an arrow and hold it in flame for the space of ten pulses, and when it cometh forth you shall find those parts of the arrow which were on the outsides of the flame, more burned, blacked, and turned almost into a coal; whereas that in the midst of the flame will be as if the fire had scarce touched it. This is an instance of great consequence for the discovery of the nature of flame; and sheweth manifestly that flame burneth more violently towards the sides than in the midst.

46. Take two large capons, perboil them upon a soft fire by the space of an hour or more, till in effect all the blood be gone; add in the decoction the peel of a sweet lemon, or a good part of the peel of a citron, and a little mace; cut off the shanks and throw them away; then with a good strong chopping-knife mince the two capons, bones and all, as small as ordinary minced-meat, put them into a large neat boulder, then take a kilderkin, sweet and well seasoned, of four gallons of beer of 8s. strength, new as it cometh from the tunning; make in the

kilderkin a great bunghole of purpose; then thrust into it the boulder (in which the capons are) drawn out in length; let it steep in it three days and three nights, the bunghole open, to work; then close the bunghole, and so let it continue a day and a half; then draw it into bottles, and you may drink it well after three days' bottling, and it will last six weeks (approved). It drinketh fresh, flowreth and mantleth exceedingly; it drinketh not newish at all; it is an excellent drink for a consumption, to be drunk either alone or carded with some other beer. It quencheth thirst, and hath no whit of windiness. Note, that it is not possible that meat and bread, either in broths or taken with drink, as is used, should get forth into the veins and outward parts so finely and easily as when it is thus incorporate and made almost a chylus aforehand.

61. Generally diseases that are chronical, as coughs, phthisics, some kinds of palsies, lunacies, &c., are most dangerous at the first, therefore a wise physician will consider whether a disease be incurable, or whether the just cure of it be not full of peril; and if he find it to be such, let him resort to palliation, and alleviate the symptom without busying himself too much with the perfect cure; and many times (if the patient be indeed patient) that course will exceed all expectation. Likewise the patient himself may strive, by little and little, to overcome the symptom, in the exacerbation, and so, by time, turn suffering into nature.

69. The producing of cold is a thing very worthy the inquiry, both for use and disclosure of causes; for heat and cold are nature's two hands, whereby she chiefly worketh; and heat we have in readiness, in respect of the fire; but for cold we must stay till it cometh, or seek it in deep caves or high mountains: and when all is done we cannot obtain it in any great degree, for furnaces of fire are far hotter than a summer's sun; but vaults or hills are not much colder than a winter's frost.

74. It were not amiss to try opium, by laying it upon the top of a weather-glass, to see whether it will contract the air; but I doubt it will not succeed; for besides that the virtue of opium will hardly penetrate through such a body as glass, I conceive that opium and the like make the spirits fly rather by malignity than by cold.

75. There is an opinion that the moon is magnetical of heat, as the sun is of cold and moisture; it were not amiss, therefore, to try it with warm waters; the one exposed to the beams of the

moon, the other with some screen betwixt the beams of the moon and the water, as we use to the sun for shade, and to see whether the former will cool sooner.

78. It is reported of very good credit, that in the East Indies if you set a tub of water open in a room where cloves are kept, it will be drawn dry in twenty-four hours, though it stand at some distance from the cloves. In the country, they use many times, in deceit, when their wool is new shorn, to set some pails of water by in the same room, to increase the weight of the wool. But it may be that the heat of the wool, remaining from the body of the sheep, or the heat gathered by the lying close of the wool, helpeth to draw the watry vapour; but that is nothing to the version.

83. The examples of induration, taking them promiscuously, are many: as the generation of stones within the earth, which at the first are but rude earth or clay: and so of minerals, which come (no doubt) at first, of juices concrete, which afterward indurate; and so of porcelain, which is an artificial cement, buried in the earth a long time; and so the making of brick and tile: also the making of glass, of a certain sand, and brake-roots, and some other matters; also the exudations of rock-diamonds and crystal, which harden with time; also the induration of head-amber, which at first is a soft substance, as appeareth by the flies and spiders which are found in it.

85. It is certain that an egg was found, having lain many years in the bottom of a moat, where the earth had somewhat overgrown it; and this egg was come to the hardness of a stone, and had the colours of the white and yolk perfect, and the shell shining in small grains like sugar or alabaster.

91. The eye of the understanding is like the eye of the sense; for as you may see great objects through small crannies or levels, so you may see great axioms of nature through small and contemptible instances.

98. The knowledge of man hitherto hath been determined by the view or sight; so that whatsoever is invisible, either in respect of the fineness of the body itself, or the smallness of the parts, or of the subtilty of the motion, is little inquired; and yet these be the things that govern nature principally; and without which you cannot make any true analysis and indication of the proceedings of nature. The spirits or pneumatics, that are in all tangible bodies, are scarce known: sometimes they take them for vacuum, whereas they are the most active of bodies; sometimes they take them from air, from which they

differ exceedingly, as much as wine from water, and as wood from earth; sometimes they will have them to be natural heat, or a portion of the element of fire, whereas some of them are crude and cold; and sometimes they will have them to be the virtues and qualities of the tangible parts, which they see, whereas they are things by themselves. And then, when they come to plants and living creatures, they call them souls; and such superficial speculations they have, like prospectives, that show things inward when they are but paintings. Neither is this a question of words, but infinitely material in nature; for spirits are nothing else but a natural body, rarified to a proportion and included in the tangible parts of bodies as in an integument; and they be no less differing one from the other than the dense or tangible parts; and they are in all tangible bodies whatsoever, more or less; and they are never, almost, at rest; and from them and their motions principally proceed arefaction, colliquation, concoction, maturation, putrefaction, vivification, and most of the effects of nature; for, as we have figured them in our *Sapientia Veterum*, in the fable of Proserpina, you shall in the infernal regiment hear little doings of Pluto, but most of Proserpina; for tangible parts in bodies are stupid things; and the spirits do, in effect, all.

100. There is nothing more certain in nature than that it is impossible for any body to be utterly annihilated; but that, as it was the work of the omnipotency of God to make somewhat of nothing, so it requireth the like omnipotency to turn somewhat into nothing; and therefore it is well said by an obscure writer of the sect of the chymists, that there is no such way to effect the strange transmutations of bodies, as to endeavour and urge by all means the reducing of them to nothing: and herein is contained also a great secret of preservation of bodies from change; for if you can prohibit that they neither turn into air, because no air cometh to them; nor go into the bodies adjacent, because they are utterly heterogeneous; nor make a round and circulation within themselves; they will never change, though they be in their nature never so perishable or mutable. We see how flies and spiders, and the like, get a sepulchre in amber, more durable than the monument and embalming of the body of any king.

104. It is to be noted (the rather lest any man should think that there is anything in this number of eight to create the diapason) that this computation of eight is a thing rather received than any true computation; for a true computation

ought ever to be, by distribution into equal portions. Now there be intervenient in the rise of eight (in tones) two bémols, or half-notes; so as if you divide the tones equally, the eighth is but seven whole and equal notes; and if you subdivide that into half-notes (as it is in the stops of a lute), it maketh the number of thirteen.

105. Yet this is true, that in the ordinary rises and falls of the voice of man (not measuring the tone by whole notes, and half-notes, which is the equal measure), there fall out to be two bémols (as hath been said) between the unison and the diapason; and this varying is natural; for if a man would endeavour to raise or fall his voice, still by half-notes, like the stops of a lute, or by whole notes alone, without halves, as far as an eighth, he will not be able to frame his voice unto it; which sheweth that after every three whole notes nature requireth, for all harmonical use, one half-note to be interposed.

113. There be in music certain figures or tropes, almost agreeing with the figures of rhetoric, and with the affections of the mind and other senses. First, the division and quavering, which please so much in music, have an agreement with the glittering of light, as the moonbeams playing upon a wave. Again, the falling from a discord to a concord, which maketh great sweetness in music, hath an agreement with the affections, which are reintegrated to the better, after some dislikes. It agreeth also with the taste, which is soon glutted with that which is sweet alone. The sliding from the close or cadence hath an agreement with the figure in rhetoric which they call *præter expectatum*; for there is a pleasure even in being deceived. The reports and fuges have an agreement with the figures in rhetoric of repetition and traduction. The triplas and changing of times have an agreement with the changes of motions, as when galliard-time and measure-time are in the medley of one dance.

121. I heard it affirmed by a man, that was a great dealer in secrets, but he was but vain, that there was a conspiracy, which himself hindered, to have killed Queen Mary, sister to Queen Elizabeth, by a burning-glass, when she walked in St. James's Park, from the leads of the house; but thus much, no doubt, is true, that if burning-glasses could be brought to a great strength (as they talk generally of burning-glasses that are able to burn a navy), the percussion of the air alone by such a burning-glass would make no noise, no more than is found in coruscations and lightnings without thunders.

127. It hath been anciently reported, and is still received, that extreme applauses and shouting of people assembled in great multitudes, have so rarified and broken the air, that birds flying over have fallen down, the air being not able to support them. And it is believed by some that great ringing of bells in populous cities hath chased away thunder, and also dissipated pestilent air; all which may be also from the concussion of the air and not from the sound.

128. A very great sound, near hand, hath stricken many deaf; and at the instant they have found, as it were, the breaking of a skin or parchment in their ear; and myself standing near one that lured loud and shrill, had suddenly an offence, as if somewhat had broken or been dislocated in my ear, and immediately after a loud ringing (not an ordinary singing, or hissing, but far louder and differing); so as I feared some deafness; but after some half quarter of an hour it vanished.

134. Take one vessel of silver and another of wood, and fill each of them full of water, and then nap the tongs together as before, about a handful from the bottom, and you shall find the sound much more resounding from the vessel of silver than from that of wood; and yet if there be no water in the vessel, so that you nap the tongs in the air, you shall find no difference between the silver and the wooden vessel; whereby, beside the main point of creating sound without air, you may collect two things; the one, that the sound communicateth with the bottom of the vessel; the other, that such a communication passeth far better through water than air.

140. There is in St. James's Fields a conduit of brick, unto which joineth a low vault; and at the end of that a round-house of stone; and in the brick conduit there is a window; and in the round-house a slit or rift of some little breadth; if you cry out in the rift it will make a fearful roaring at the window. The cause is the same with the former; for that all concaves that proceed from more narrow to more broad, do amplify the sound at the coming out.

155. And as for water it is a certain trial; let a man go into a bath and take a pail, and turn the bottom upward, and carry the mouth of it even down to the level of the water, and so press it down under the water, some handful and a half, still keeping it even that it may not tilt on either side, and so the air get out; then let him that is in the bath dive with his head so far under water as he may put his head into the pail, and

there will come as much air bubbling forth as will make room for his head; then let him speak, and any that shall stand without shall hear his voice plainly, but yet made extreme sharp and exile, like the voice of puppets; but yet the articulate sounds of the words will not be confounded. Note, that it may be much more handsomely done, if the pail be put over the man's head above water and then he cower down and the pail be pressed down with him. Note that a man must kneel or sit that he may be lower than the water. A man would think that the Sicilian poet had knowledge of this experiment; for he saith that Hercules's page Hylas went with a water-pot to fill it at a pleasant fountain that was near the shore, and that the nymphs of the fountain fell in love with the boy and pulled him under water, keeping him alive; and that Hercules missing his page, called him by his name aloud, so that all the shore rang of it; and that Hylas from within the water answered his master; hut (that which is to the present purpose) with so small and exile a voice, as Hercules thought he had been three miles off, when the fountain, indeed, was fast by.

198. The motions of the tongue, lips, throat, palate, &c. which go to the making of the several alphabetical letters, are worthy inquiry and pertinent to the present inquisition of sounds; but because they are subtle and long to describe, we will refer them over and place them amongst the experiments of speech. The Hebrews have been diligent in it, and have assigned which letters are labial, which dental, which guttural, &c. As for the Latins and Grecians they have distinguished between semi-vowels and mutes; and in mutes, between *mutes tenues*, *mediæ*, and *aspiratæ*; not amiss, but yet not diligently enough. For the special strokes and motions that create those sounds they have little inquired; as that the letters *b*, *p*, *f*, *m*, are not expressed but with the contracting or shutting of the mouth; that the letters *n* and *b* cannot be pronounced; but that the letter *n* will turn into *m*, as hecatomba will be hecatomba. That *m* and *t* cannot be pronounced together, but *p* will come between, as *emptus* is pronounced *emptus*; and a number of the like; so that if you inquire to the full, you will find, that to the making of the whole alphabet there will be fewer simple motions required than there are letters.

200. There is found a similitude between the sound that is made by inanimate bodies or by animate bodies that have no voice articulate, and divers letters of articulate voices. And commonly men have given such names to those sounds as do

allude unto the articulate letters : as trembling of water bath resemblance with the letter *l* ; quenching of hot metals, with the letter *x* ; snarling of dogs, with the letter *r* ; the noise of screech-owls, with the letter *sk* ; voice of cats, with the diphthong *æ* ; voice of cuckoos, with the diphthong *ow* ; sounds of strings, with the letter *ag* ; so that if a man (for curiosity or strangeness sake) would make a puppet or other dead body to pronounce a word, let him consider, on the one part, the motion of the instruments of voice ; and on the other part, the like sounds made in inanimate bodies ; and what conformity there is that causeth the similitude of sounds, and by that he may minister light to that effect.

225. The sweetest and best harmony is, when every part or instrument is not heard by itself, but a conflation of them all, which requireth to stand some distance off : even as it is in the mixture of perfumes, or the taking of the smells of several flowers in the air.

236. It is a strange thing in nature, when it is attentively considered, how children and some birds learn to imitate speech. They take no mark at all of the motion of the mouth of him that speaketh, for birds are as well taught in the dark as by light. The sounds of speech are very curious and exquisite, so one would think it were a lesson hard to learn. It is true that it is done with time, and by little and little, and with many essays and proffers, but all this dischargeth not the wonder. It would make a man think (though this which we shall say may seem exceeding strange) that there is some transmission of spirits, and that the spirits of the teacher put in motion should work with the spirits of the learner, a predisposition to offer to imitate, and so to perfect the imitation by degrees. But, touching operations by transmissions of spirits (which is one of the highest secrets in nature) we shall speak in due place, chiefly when we come to inquire of imagination. But, as for imitation, it is certain that there is in men and other creatures a predisposition to imitate. We see how ready apes and monkeys are to imitate all motions of man ; and, in the catching of dotterels, we see how the foolish bird playeth the ape in gestures ; and no man, in effect, doth accompany with others, but he learneth, ere he is aware, some gesture, or voice, or fashion of the other.

239. But I conceive that the aptness of birds is not so much in the conformity of the organs of speech as in their attention ; for speech must come by hearing and learning ; and birds

give more heed, and mark sounds more than beasts, because, naturally they are more delighted with them, and practise them more, as appeareth in their singing. We see also that those that teach birds to sing do keep them waking, to increase their attention; we see also that cock-birds, amongst singing-birds, are ever the better singers, which may be because they are more lively, and listen more.

249. For echoes upon echoes there is a rare instance thereof in a place, which I will now exactly describe: it is some three or four miles from Paris, near a town called Pont-Charenton, and some bird-bolt shot or more from the river of Seine; the room is a chapel or small church, the walls all standing, both at the sides and at the ends; two rows of pillars, after the manner of aisles of churches, also standing; the roof all open, not so much as any emboument near any of the walls left. There was against every pillar a stack of billets, above a man's height, which the watermen that bring wood down the Seine in stacks, and not in boats, laid there, as it seemeth, for their ease. Speaking at the one end, I did hear it return the voice thirteen several times; and I have heard of others that it would return sixteen times, for I was there about three of the clock in the afternoon, and it is best (as all other echoes are) in the evening. It is manifest that it is not echoes from several places, but a tossing of the voice, as a ball to and fro, like to reflections in looking-glasses, where, if you place one glass before and another behind, you shall see the glass behind with the image within the glass before, and again the glass before in that, and divers such super-reflections, till the species speciei at last die, for it is every return weaker and more shady. In like manner the voice in that chapel createth speciem speciei, and maketh succeeding super-reflections, for it melteth by degrees, and every reflection is weaker than the former, so that if you speak three words, it will, perhaps, some three times report you the whole three words, and then the two latter words for some times, and then the last word alone for some times, still fading and growing weaker; and whereas in echoes of one return it is much to hear four or five words; in this echo, of so many returns upon the matter, you hear above twenty words for three.

251. There are certain letters that an echo will hardly express, as *s* for one, especially being principal in a word. I remember well, that when I went to the echo at Pont-Charenton, there was an old Parisian that took it to be the work of

spirits, and of good spirits; for (said he) call Satan, and the echo will not deliver back the Devil's name, but will say *Va t'en*, which is as much in French as *Apage*, or *Avoid*: and thereby I did hap to find that an echo would not return *s*, being but a hissing, and an interior sound.

285. Let it be tried, for the help of the hearing (and I conceive it likely to succeed), to make an instrument like a tunnel, the narrow part whereof may be of the bigness of the hole of the ear, and the broader end much larger, like a bell at the skirts, and the length half a foot or more; and let the narrow end of it be set close to the ear, and mark whether any sound abroad in the open air will not be heard distinctly from further distance than without that instrument, being, as it were, an ear-spectacle. And I have heard there is in Spain an instrument in use to be set to the ear, that helpeth somewhat those that are thick of hearing.

290. We have laboured, as may appear, in this inquisition of sounds diligently, both because sound is one of the most hidden portions of nature (as we said in the beginning), and because it is a virtue which may be called incorporeal and immaterial, whereof there be in nature but few; besides, we were willing now, in these our first Centuries, to make a pattern or president of an exact inquisition, and we shall do the like hereafter in some other subjects which require it; for we desire that men should learn and perceive how severe a thing the true inquisition of nature is, and should accustom themselves, by the light of particulars, to enlarge their minds to the amplitude of the world, and not reduce the world to the narrowness of their minds.

317. There were taken apples, and laid in straw, in hay, in flower, in chalk, in lime, covered over with onions, covered over with crabs, closed up in wax, shut in a box, &c.; there was also an apple hanged up in smoke, of all which the experiment sorted in this manner:—

318. After a month's space the apple inclosed in wax was as green and fresh as at the first putting in, and the kernels continued white. The cause is, for that all exclusion of open air (which is ever predatory) maintaineth the body in his first freshness and moisture, but the inconvenience is that it tasteth a little of the wax, which, I suppose, in a pomegranate, or some such thick-coated fruit, it would not do.

319. The apple hanged in the smoke turned like an old mellow apple, wrinkled, dry, soft, sweet, yellow within. The cause

is, for that such a degree of heat, which doth neither melt nor scorch (for we see that in a greater heat a roast apple softeneth and melteth, and pig's feet, made of quarters of wardens, scorch and have a skin of coal), doth mellow and not adure; the smoke also maketh the apple, as it were, sprinkled with soot, which helpeth to mature. We see that in drying of pears and prunes in the oven, and removing of them often as they begin to sweat, there is a like operation, but that is with a far more intense degree of heat.

320. The apples covered in the lime and ashes were well matured, as appeared both in their yellowness and sweetness. The cause is, for that that degree of heat which is in lime and ashes (being a smothering heat) is of all the rest most proper, for it doth neither liquify nor airify, and that is true maturation. Note, that the taste of those apples was good, and, therefore, it is the experiment fittest for use.

321. The apples covered with crabs and onions were likewise well matured. The cause is, not any heat, but for that the crabs and the onions draw forth the spirits of the apple, and spread them equally throughout the body, which taketh away hardness. So we see one apple ripeneth against another, and therefore, in making of cider, they turn the apples first upon a heap; so one cluster of grapes that toucheth another whilst it groweth ripeneth faster. *Botrus contra botrum citius maturascit.*

322. The apples in hay and the straw ripened apparently, though not so much as the other, but the apple in the straw more. The cause is, for that the hay and straw have a very low degree of heat, but yet close and smothering, and which drieth not.

323. The apple in the close box was ripened also. The cause is, for that all air kept close hath a degree of warmth, as we see in wool, fur, plush, &c. Note, that all these were compared with another apple of the same kind that lay of itself, and, in comparison of that, were more sweet, and more yellow, and so appeared to be more ripe.

327. The world hath been much abused by the opinion of making of gold. The work itself I judge to be possible, but the means hitherto propounded to effect it are, in the practice, full of error and imposture, and in the theory full of unsound imaginations; for, to say that nature hath an intention to make all metals gold, and that if she were delivered from impediments, she would perform her own work; and that if

the crudities, impurities, and leproisities of metals were cured, they would become gold, and that a little quantity of the medicine in the work of projection will turn a sea of the baser metal into gold, by multiplying: all these are but dreams, and so are many other grounds of alchemy; and, to help the matter, the alchemists call in likewise many vanities out of astrology, natural magic, superstitious interpretations of Scriptures, auricular traditions, feigned testimonies of ancient authors, and the like. It is true, on the other side, they have brought to light not a few profitable experiments, and thereby made the world some amends; but we, when we shall come to handle the version and transmutation of bodies, and the experiments concerning metals and minerals, will lay open the true ways and passages of nature, which may lead to this great effect. And we commend the wit of the Chinese, who despair of making of gold, but are mad upon the making of silver, for certain it is, that it is more difficult to make gold (which is the most ponderous and materiate amongst metals) of other metals less ponderous and less materiate, than *vis versa* to make silver of lead or quicksilver, both which are more ponderous than silver; so that they need rather a further degree of fixation than any condensation. In the mean time, by occasion of handling the axioms touching maturation, we will direct a trial touching the maturing of metals, and thereby turning some of them into gold; for we conceive, indeed, that a perfect good concoction, or digestion, or maturation of some metals will produce gold. And here we call to mind, that we knew a Dutchman that had wrought himself into the belief of a great person, by undertaking that he could make gold, whose discourse was, that gold might be made, but that the alchemists over-fired the work; for, he said, the making of gold did require a very temperate heat, as being in nature a subterranean work, where little heat cometh, but yet more to the making of gold than of any other metal; and, therefore, that he would do it with a great lamp that should carry a temperate and equal heat, and that it was the work of many months. The device of the lamp was folly; but the over-firing now used, and the equal heat to be required, and the making it a work of some good time, are no ill discourses.

Let there be a small furnace made of a temperate heat; let the heat be such as may keep the metal perpetually molten, and no more, for that above all importeth to the work. For the material, take silver, which is the metal that in nature

symbolizeth most with gold; put in also with the silver a tenth part of quicksilver and a twelfth part of nitre, by weight, both these to quicken and open the body of the metal, and so let the work be continued by the space of six months at least. I wish also that there be, as sometimes, an injection of some oiled substance, such as they use in the recovering of gold, which, by vexing with separations, hath been made churlish; and this is, to lay the parts more close and smooth, which is the main work: for gold, as we see, is the closest, and therefore the heaviest, of metals, and is likewise the most flexible and tensible. Note, that to think to make gold of quicksilver, because it is the heaviest, is a thing not to be hoped, for quicksilver will not endure the manage of the fire. Next to silver, I think, copper were fittest to be the material.

352. The experiment of wood that shineth in the dark we have diligently driven and pursued, the rather for that of all things that give light here below it is the most durable, and hath least apparent motion. Fire and flame are in continual expense; sugar shining only while it is in scraping, and salt-water while it is in dashing; glow-worms have their shining while they live, or a little after; only scales of fishes (putrified) seem to be of the same nature with shining wood, and it is true that all putrefaction hath with it an inward motion, as well as fire or light. The trial sorted thus: 1. The shining is in some pieces more bright, in some more dim, but the most bright of all doth not attain to the light of a glow-worm. 2. The woods that have been tried to shine are chiefly sawallow and willow; also the ash and hazel; it may be it holdeth in others. 3. Both roots and bodies do shine, but the roots better. 4. The colour of the shining part by daylight is in some pieces white, in some pieces inclining to red, which in the country they call the white and red carrot. 5. The part that shineth is (for the most part) somewhat soft and moist to feel to, but some was found to be firm and hard, so that it might be figured into a cross or into beads, &c.; but you must not look to have an image or the like in anything that is lightsome, for even a face in iron red-hot will not be seen, the light confounding the small differences of lightsome and darksome, which show the figure. 6. There was the shining part pared off till you came to that that did not shine; but within two days the part contiguous began also to shine, being laid abroad in the dew, so, as it seemeth, the putrefaction spreadeth. 7. There was other dead wood of like kind that was laid

abroad, which shined not at the first, but after a night's lying abroad began to shine. 8. There was other wood that did first shine, and, being laid dry in the house, within five or six days lost the shining, and, laid abroad again, recovered the shining. 9. Shining woods being laid in a dry room, within a seven-night lost their shining, but being laid in a cellar, or dark room, kept the shining. 10. The boring of holes in that kind of wood, and then laying it abroad, seemeth to conduce to make it shine. The cause is, for that all solution of continuity doth help on putrefaction, as was touched before. 11. No wood hath been yet tried to shine that was cut down alive, but such as was rotted, both in stock and root, while it grew. 12. Part of the wood that shined was steeped in oil, and retained the shining a fortnight. 13. The like succeeded in some steeped in water, and much better. 14. How long the shining will continue if the wood be laid abroad every night, and taken in and sprinkled with water in the day, is not yet tried. 15. Trial was made of laying it abroad in frosty weather, which hurt it not. 16. There was a great piece of a root which did shine, and the shining part was cut off till no more shined; yet, after two nights, though it was kept in a dry room, it got a shining.

354. To accelerate growth or stature, it must proceed either from the plenty of the nourishment or from the nature of the nourishment, or from the quickening and exciting of the natural heat. For the first excess of nourishment is hurtful, for it maketh the child corpulent, and growing in breadth rather than in height. And you may take an experiment from plants, which if they spread much are seldom tall. As for the nature of the nourishment, first, it may not be too dry, and, therefore, children in dairy countries do wax more tall than where they feed more upon bread and flesh. There is also a received tale that boiling of daisy roots in milk (which it is certain are great driers) will make dogs little. . . . Neither is it without cause that Xenophon, in the nouriture of the Persian children, doth so much commend their feeding upon cardamon, which, he saith, made them grow better, and be of a more active habit. Cardamon is in Latin nasturtium, and with us, water-cresses, which, it is certain, is an herb that, whilst it is young, is friendly to life. As for the quickening of natural heat, it must be done chiefly with exercise, and therefore, no doubt, much going to school, where they sit so much, hindereth the growth of chil-

dren, whereas country people that go not to school are commonly of better stature. And again, men must beware how they give children anything that is cold in operation, for even long sucking doth hinder both wit and stature. This hath been tried, that a whelp that hath been fed with nitre in milk hath become very little, but extremely lively; for the spirit of nitre is cold; and though it be an excellent medicine in strength of years for prolongation of life, yet it is in children and young creatures an enemy to growth: and all for the same reason; for heat is requisite to growth, but, after a man is come to his middle age, heat consumeth the spirits, which the coldness of the spirit of nitre doth help to condense and correct.

360. A chameleon is a creature about the bigness of an ordinary lizard; his head unproportionably big; his eyes great; he moveth his head without the writhing of his neck (which is inflexible), as a hog doth; his back crooked; his skin spotted with little tumours, less eminent nearer the belly; his tail slender and long; on each foot he hath five fingers, three on the outside and two on the inside; his tongue of a marvellous length in respect of his body, and hollow at the end, which he will launch out to prey upon flies; of colour, green, and of a dusky yellow, brighter and whiter towards the belly, yet spotted with blue, white, and red. If he be laid upon green, the green predominateth; if upon yellow, the yellow; not so if he be laid upon blue, or red, or white; only the green spots receive a more orient lustre; laid upon black, he looketh all black, though not without a mixture of green. He feedeth not only upon air (though that be his principal sustenance), for sometimes he taketh flies, as was said; yet some that have kept chameleons a whole year together could never perceive that ever they fed upon anything else but air, and might observe their bellies to swell after they had exhausted the air and closed their jaws, which they open commonly against the rays of the sun. They have a foolish tradition in magic, that if a chameleon be burnt upon the top of an house it will raise a tempest, supposing (according to their vain dreams of sympathies) because he nourisheth with air, his body should have great virtue to make impression upon the air.

365. Take damask roses and pull them; then dry them upon the top of a house, upon a lead or tarras in the hot sun in a clear day between the hours only of twelve and two, or thereabouts. Then put them into a sweet dry earthen bottle,

or a glass with narrow mouths, stuffing them close together, but without bruising; stop the bottle or glass close, and these roses will retain not only their smell perfect, but their colour fresh for a year at least. . . . Note, that these roses, when you take them from the drying, have little or no smell, so that the smell is a second smell that issueth out of the flower afterwards.

377. An orange, lemon, and apple, wrapped in a linen cloth, being buried for a fortnight's space four foot deep within the earth, though it were in a moist place and a rainy time, yet came forth no ways mouldy or rotten, but were become a little harder than they were, otherwise fresh in their colour, but their juice somewhat flatted; but with the burial of a fortnight more they became putrified.

378. A bottle of beer buried in like manner as before, became more lively, better tasted, and clearer than it was; and a bottle of wine in like manner. A bottle of vinegar so buried, came forth more lively and more odoriferous, smelling almost like a violet: and after the whole month's burial, all the three came forth as fresh and lively, if not better, than before.

379. It were a profitable experiment to preserve oranges, lemons, and pomegranates till summer, for then their price will be mightily increased. This may be done, if you put them in a pot or vessel well covered, that the moisture of the earth come not at them; or else by putting them in a conservatory of snow. And, generally, whosoever will make experiments of cold, let him be provided of three things—a conservatory of snow, a good large vault, twenty feet at least under the ground, and a deep well.

386. Divers we see do stut. The cause may be (in most) the refrigeration of the tongue, whereby it is less apt to move; and, therefore, we see that naturals do generally stut; and we see that in those that stut, if they drink wine moderately, they stut less, because it heateth; and so we see that they that stut do stut more in the first offer to speak than in continuance, because the tongue is by motion somewhat heated; in some, also, it may be (though rarely) the dryness of the tongue, which likewise maketh it less apt to move, as well as cold: for it is an affect that cometh to some wise and great men, as it did unto Moses, who was *linguæ præpeditæ*; and many stutters, we find, are very choleric men, choler inducing a dryness in the tongue.

400. Some creatures do move a good while after their head

is off, as birds; some a very little time, as men, and all beasts. Some move though cut in several pieces, as snakes, eels, worms, flies, &c. First, therefore, it is certain that the immediate cause of death is the resolution or extinguishment of the spirits, and that the destruction or corruption of the organs is but the mediate cause. But some organs are so peremptorily necessary, that the extinguishment of the spirits doth speedily follow, but yet so as there is an interim of a small time. It is reported by one of the ancients of credit, that a sacrificed beast hath lowed after the heart hath been severed; and it is a report also of credit, that the head of a pig hath been opened, and the brain put into the palm of a man's hand, trembling, without breaking any part of it, or severing it from the marrow of the back-bone, during which time the pig hath been, in all appearance, stark dead and without motion: and after a small time the brain hath been replaced and the skull of the pig closed, and the pig hath a little after gone about. And certain it is that an eye upon revenge hath been thrust forth, so as it hanged a pretty distance by the visual nerve; and during that time the eye hath been without any power of sight, and yet after (being replaced) recovered sight. Now, the spirits are chiefly in the head and cells of the brain, which in men and beasts are large, and, therefore, when the head is off they move little or nothing; but birds have small heads, and, therefore, the spirits are a little more dispersed in the sinews, whereby motion remaineth in them a little longer, insomuch as it is extant in story that an emperor of Rome, to show the certainty of his hand, did shoot a great forked arrow at an ostrich as she ran swiftly upon the stage, and struck off her head, and yet she continued the race a little way with the head off. As for worms, and flies, and eels, the spirits are diffused almost all over, and, therefore, they move in their several pieces.

401. There were sown in a bed turnip-seed, radish-seed, wheat, cucumber-seed, and peas; the bed we call a hot-bed, and the manner of it is this: there was taken horsedung, old and well rotted; this was laid upon a bank half a foot high, and supported round about with planks; and upon the top was cast sifted earth, some two fingers deep, and then the seed sprinkled upon it, having been steeped all night in water mixed with cowdung. The turnip-seed and the wheat came up half an inch above ground, within two days after, without any watering; the rest the third day. The experiment was made in October; and it may be in the spring the accele-

rating would have been the speedier. This is a noble experiment; for, without this help, they would have been four times as long in coming up; but there doth not occur to me at this present any use thereof for profit, except it should be for sowing of peas, which have their price very much increased by the early coming. It may be tried also with cherries, strawberries, and other fruit, which are dearest when they come early.

407. But the most admirable acceleration by facilitating the nourishment, is that of water; for a standard of a damask-rose with the root on was set in a chamber where no fire was, upright in an earthen pan full of fair water, without any mixture, half a foot under the water, the standard being more than two foot high above the water. Within the space of ten days the standard did put forth a fair green leaf, and some other little buds, which stood at a stay, without any show of decay or withering, more than seven days; but afterwards that leaf faded, but the young buds did sprout on, which afterward opened into fair leaves in the space of three months, and continued so a while after, till upon removal we left the trial. But note, that the leaves were somewhat paler and lighter-coloured than the leaves used to be abroad. Note, that the first buds were in the end of October; and it is likely that if it had been in the spring time it would have put forth with greater strength, and (it may be) to have grown on to bear flowers. By this means you may have (as it seemeth) roses set in the midst of a pool, being supported with some stay, which is matter of rareness and pleasure, though of small use. This is the more strange, for that the like rose-standard was put at the same time into water mixed with horseradish, the horseradish about the fourth part to the water, and in four months' space (while it was observed) put not forth any leaf, though divers buds at the first, as the other.

411. It seemeth by these instances of water, that for nourishment the water is almost all in all, and that the earth doth but keep the plant upright and save it from over-heat and over-cold, and therefore is a comfortable experiment for good drinkers.

422. It is an assured experience, that a heap of flint or stone laid about the bottom of a wild tree (as in oak, elm, ash, &c.) upon the first planting, doth make it prosper double as much as without it: the cause is, for that it retaineth the moisture which falleth at any time upon the tree, and suffereth it not

to be exhaled by the sun. Again, it keepeth the tree warm from cold blasts and frosts, as it were in a house; it may be also there is somewhat in the keeping of it steady at the first. *Quare*, if laying of straw some height about the body of a tree will not make the tree forwards; for though the root giveth the sap, yet it is the body that draweth it. But you must note, that if you lay stones about the stalk of lettuce, or other plants that are more soft, it will over-moisten the roots so as the worms will eat them.

432. The lowness of the bough where the fruit cometh maketh the fruit greater, and to ripen better; for you shall ever see in apricots, peaches, or melo-cotones upon a wall, the greatest fruits towards the bottom. And in France the grapes that make the wine grow upon the low vines bound to small stakes; and the raised vines in arbours make but verjuice. It is true that in Italy and other countries where they have hotter sun, they raise them upon elms and trees; but I conceive, that if the French manner of planting low were brought in use, their wines would be stronger and sweeter. But it is more chargeable in respect of the props: it were good to try whether a tree grafted somewhat near the ground, and the lower boughs only maintained, and the higher continually pruned off, would not make a larger fruit.

449. The pulling off many of the blossoms from a fruit-tree doth make the fruit fairer. The cause is manifest; for that the sap hath the less to nourish; and it is a common experience, that if you do not pull off some blossoms, the first time a tree bloometh it will blossom itself to death.

462. It is further reported, that if when a cucumber is grown you set a pot of water about five or six inches distance from it, it will, in twenty-four hours, shoot so much out as to touch the pot; which if it be true, it is an experiment of a higher nature that belongeth to this title; for it discovereth perception in plants to move towards that which should help and comfort them, though it be at a distance. The ancient tradition of the vine is far more strange; it is, that if you set a stake or prop some distance from it, it will grow that way, which is far stranger (as is said) than the other; for that water may work by a sympathy of attraction; but this of the stake seemeth to be a reasonable discourse.

477. It hath been set down by one of the ancients, that if you take two twigs of several fruit-trees, and flat them on the sides, and then bind them close together and set them in the

ground, they will come up in one stock ; but yet they will put forth in their several fruits without any commixture in the fruit. Wherein note (by the way) that unity of continuance is easier to procure than unity of species. It is reported also that vines of red and white grapes being set in the ground, and the upper parts being flatted and bound close together, will put forth grapes of the several colours upon the same branch, and grape-stones of several colours within the same grape ; but the more after a year or two, the unity (as it seemeth) growing more perfect ; and this will likewise help, if from the first uniting they be often watered, for all moisture helpeth to union. And it is prescribed also to bind the bud as soon as it cometh forth, as well as the stock, at the least for a time.

492. It is reported that the shrub called our lady's seal (which is a kind of briony), and coleworts, set near together, one or both will die. The cause is, for that they be both great depredators of the earth, and one of them starveth the other. The like is said of reed and a brake, both which are succulent, and therefore the one deceiveth the other ; and the like of hemlock and rue, both which draw strong juices.

501. It is a curiosity to have several fruits upon one tree ; and the more when some of them come early and some come late, so that you may have upon the same tree ripe fruits all summer : this is easily done by grafting of several scions upon several boughs of a stock, in a good ground plentifully fed. So you may have all kinds of cherries, and all kinds of plums, and peaches, and apricots, upon one tree ; but I conceive the diversity of fruits must be such as will graft upon the same stock ; and therefore I doubt whether you can have apples, or pears, or oranges, upon the same stock upon which you graft plums.

502. It is a curiosity to have fruits of divers shapes and figures ; this is easily performed by moulding them when the fruit is young with moulds of earth or wood ; so you may have cucumbers, &c. as long as a cane, or as round as a sphere, or formed like a cross. You may have also apples in the form of pears or lemons. You may have also fruit in more accurate figures, as we said of men, beasts, or birds, according as you make the moulds ; wherein you must understand, that you make the mould big enough to contain the whole fruit when it is grown to the greatest, for else you will choke the spreading of the fruit, which otherwise would spread itself and fill the concave, and so be turned into the shape desired, as it is in

mould-works of liquid things. Some doubt may be conceived that the keeping of the sun from the fruit may hurt it; but there is ordinary experience of fruit that groweth covered. *Quære* also whether some small holes may not be made in the wood to let in the sun. And note, that it were best to make the moulds partible, glued, or cemented together, that you may open them when you take out the fruit.

503. It is a curiosity to have inscriptions or engravings in fruit or trees. This is easily performed by writing with a needle, or bodkin, or knife, or the like, when the fruit or trees are young; for as they grow so the letters will grow more large and graphical.

———— *Teneresque meos incidere amores
Arboribus, crescent illæ, crescetis amores.*

504. You may have trees apparelled with flowers or herbs, by boring holes in the bodies of them and putting into them earth holpen with muck, and setting seeds or slips of violets, strawberries, wild-thyme, camomile, and such like in the earth, wherein they do but grow, in the tree, as they do in pots, though perhaps with some feeding from the trees, as it would be tried also with shoots of vines and roots of red roses; for it may be, they being of a more ligneous nature, will incorporate with the tree itself.

505. It is an ordinary curiosity to form trees and shrubs (as rosemary, juniper, and the like) into sundry shapes; which is done by moulding them within and cutting them without; but they are but lame things, being too small to keep figure. Great castles made of trees upon frames of timber, with turrets and arches, were anciently matters of magnificence.

514. The making of fruits without core or stone is likewise a curiosity, and somewhat better, because whatsoever maketh them so is like to make them more tender and delicate. If a scion or shoot, fit to be set in the ground, have the pith finely taken forth (and not altogether, but some of it left, the better to save the life), it will bear a fruit with little or no core or stone. And the like is said to be of dividing a quick-tree down to the ground, and taking out the pith and then binding it up again.

515. It is reported also that a citron grafted upon a quince will have small or no seeds; and it is very probable that any sour fruit grafted upon a stock that beareth a sweeter fruit, may both make the fruit sweeter and more void of the harsh matter of kernels or seeds.

516. It is reported that not only the taking out of the pith, but the stopping of the juice of the pith from rising in the midst, and turning it to rise on the outside, will make the fruit without core or stone; as if you should bore a tree clean through and put a wedge in. It is true there is some affinity between the pith and the kernel, because they are both of a harsh substance and both placed in the midst.

517. It is reported that trees watered perpetually with warm water will make a fruit with little or no core or stone. And the rule is general, that whatsoever will make a wild tree a garden tree, will make a garden tree to have less core or stone.

522. There is an old tradition that boughs of oak put into the earth will put forth wild vines; which if it be true (no doubt), it is not the oak that turneth into a vine, but the oak-bough putrifying, qualifieth the earth to put forth a vine of itself.

523. It is not impossible, and I have heard it verified, that upon cutting down of an old timber tree, the stub hath put out sometimes a tree of another kind, as that beech hath put forth birch, which if it be true, the cause may be, for that the old stub is too scant of juice to put forth the former tree, and therefore putteth forth a tree of smaller kind that needeth less nourishment.

524. There is an opinion in the country, that if the same ground be oft sown with the grain that grew upon it, it will, in the end, grow to be of a baser kind.

525. It is certain that, in sterile years, corn sown will grow to another kind.

This work of the transmutation of plants one into another, is *inter magis naturæ*; for the transmutation of species is, in the vulgar philosophy, pronounced impossible; and certainly it is a thing of difficulty, and requireth deep search into nature; but seeing there appear some manifest instances of it, the opinion of impossibility is to be rejected, and the means thereof to be found out. We see that, in living creatures that come of putrefaction, there is much transmutation of one into another, as caterpillars turn into flies, &c. And it should seem probable that, whatsoever creature having life is generated without seed, that creature will change out of one species into another; for it is the seed and the nature of it which locketh and boundeth in the creature, that it doth not expatiate. So as we may well conclude, that seeing the earth of itself doth put forth plants without seed, therefore plants may well have a trans-

migration of species; wherefore wanting instances which do occur, we shall give directions of the most likely trials. And generally, we would not have those that read this work of "*Sylva Sylvarum*," account it strange or think that it is an over-haste, that we have set down particulars untried; for contrarywise, in our own estimation, we account such particulars more worthy than those that are already tried and known, for these later must be taken as you find them; but the other do level point blank at the inventing of causes and axioms.

547. It is reported that the bark of white or red poplar (which are of the moistest of trees), cut small and cast into furrows well dunged, will cause the ground to put forth mushrooms at all seasons of the year, fit to be eaten. Some add to the mixture leaven of bread resolved in water.

548. It is reported that if a hilly field, where the stubble is standing, be set on fire in the showery season, it will put forth great store of mushrooms.

549. It is reported that hartshorn, shaven or in small pieces, mixed with dung and watered, putteth up mushrooms. And we know that hartshorn is of a fat and clammy substance; and it may be ox-horn would do the like.

550. It hath been reported, though it be scarce credible, that ivy hath grown out of a stag's horn; which they suppose did rather come from a confrication of the horn upon the ivy than from the horn itself. There is not known any substance but earth, and the procedures of earth (as tile, stone, &c.), that yieldeth any moss or herby substance.

560. It is certain that both stock-gillyflowers and rose-campions, stamped, have been applied with success to the wrists of those that have had tertian or quartan agues; and the vapour of colts-foot has a sanative virtue towards the lungs; and the leaf also is healing in surgery.

571. In some mines in Germany, as is reported, there grow in the bottom vegetables; and the workfolks use to say they have magical virtue, and will not suffer men to gather them.

574. It is reported that earth that was brought out of the Indies, and other remote countries for ballast for ships, cast upon some grounds in Italy, did put forth foreign herbs, to us in Europe not known; and, that which is more, that of their roots, barks, and seeds, contused together and mingled with other earth and well watered with warm water, there came forth herbs much like the other.

577. There be some flowers, blossoms, grains, and fruit,

which come more early, and others which come more late in the year. The flowers that come early with us are, prime-roses, violets, anemonies, water-daffadillies, crocus vernus, and some early tulippas; and they are all cold plants, which therefore (as it should seem) have a quicker perception of the heat of the sun increasing than the hot herbs have; as a cold hand will sooner find a little warmth than a hot. And those that come next after are wallflowers, cowslips, hyacinths, rosemary-flowers, &c.; and after them pinks, roses, flowerdeluces, &c.; and the latest are gillyflowers, hollyhocks, larksfoot, &c. The earliest blossoms are the blossoms of peaches, almonds, cornelians, mezerions, &c; and they are of such trees as have much moisture, either watery or oily; and therefore crocus vernus also, being an herb that hath an oily juice, putteth forth early, for those also find the sun sooner than the drier trees. The grains are, first rye and wheat, then oats and barley, then peas and beans; for though green peas and beans be eaten sooner, yet the dry ones, that are used for horsemeat, are ripe last; and it seemeth that the fatter grain cometh first. The earliest fruits are strawberries, cherries, gooseberries, currants; and after them early apples, early pears, apricots, rasps; and after them damasins and most kind of plums, peaches, &c.; and the latest are apples, wardens, grapes, nuts, quinces, almonds, sloes, briar-berries, hips, medlars, services, cornelians, &c.

578. It is to be noted that commonly trees that ripen latest blossom soonest, as peaches, cornelians, sloes, almonds, &c.; and it seemeth to be a work of Providence that they blossom so soon, for otherwise they could not have the sun long enough to ripen.

590. Flowers have all exquisite figures; and the flower-numbers are chiefly five and four, as in prime-roses, briar-roses, single musk-roses, single-pinks, and gillyflowers, &c., which have five leaves; lillies, flowerdeluces, borage, bugloss, &c., which have four leaves. But some put forth leaves not numbered, but they are ever small ones, as marygolds, trefoil, &c. We see also that the sockets and supporters of flowers are figured, as in the five brethren of the rose, sockets of gilly-flowers, &c. Leaves also are all figured, some round, some long, none square, and many jagged on the sides, which leaves of flowers seldom are.

606. I left once, by chance, a citrou cut, in a close room for three summer months that I was absent, and at my return

there were grown forth, out of the pith cut, tufts of hairs an inch long, with little black heads, as if they would have been some herb.

609. There is a fabulous narration, that in the northern countries there should be an herb that groweth in the likeness of a lamb, and feedeth upon the grass, in such sort, as it will bear the grass round about. But I suppose that the figure maketh the fable, for so we see, there be bee-flowers, &c.; and as for the grass, it seemeth the plant, having a great stalk and top, doth prey upon the grass a good way about, by drawing the juice of the earth from it.

623. It is reported that, in some places, vines are suffered to grow like herbs, spreading upon the ground; and that the grapes of those vines are very great. It were good to make trial whether plants that use to be born up by props, will put forth greater leaves and greater fruits, if they be laid along the ground, as hops, ivy, woodbine, &c.

626. Such fruits as you appoint for long keeping, you must gather before they be full ripe; and in a fair and dry day, towards noon, and when the wind bloweth not south, and when the moon is under the earth and in decrease.

627. Take grapes and hang them in an empty vessel, well stopped, and set the vessel, not in a cellar, but in some dry place, and it is said they will last long; but it is reported by some they will keep better in a vessel half full of wine, so that the grapes touch not the wine.

628. It is reported that the preserving of the stalk helpeth to preserve the grape, especially if the stalk be put into the pith of elder, the elder not touching the fruit.

629. It is reported by some of the ancients that fruit put in bottles, and the bottles let down into wells under water, will keep long.

656. The reed or cane is a watery plant, and groweth not but in the water; it hath these properties; that it is hollow, that it is knuckled, both stalk and root, that being dry it is more hard and fragile than other wood; that it putteth forth no boughs, though many stalks out of one root. It differeth much in greatness, the smallest being fit for thatching of houses and stopping the chinks of ships, better than glue or pitch. The second bigness is used for angle-rods and staves, and in China for beating of offenders upon the thighs. The differing kinds of them are the common reed, the cassia fistula, and the sugar-reed. Of all plants it boweth the easiest and

riseth again. It seemeth, that amongst plants which are nourished with mixture of earth and water, it draweth most nourishment from water, which maketh it the smoothest of all others in bark, and the hollowest in body.

660. The putting forth of certain herbs discovereth of what nature the ground where they put forth is; as wild thyme showeth good feeding-ground for cattle; bettony and strawberries showeth grounds fit for wood; camomile showeth mellow grounds fit for wheat; mustard-seed, growing after the plough, showeth a good strong ground also for wheat; burnet showeth good meadow, and the like.

670. The remedies of the diseases of corn have been observed as followeth :—The steeping of the grain, before sowing, a little time in wine, is thought a preservative; the mingling of seed-corn with ashes is thought to be good; the sowing at the wane of the moon is thought to make the corn sound. It hath not been practised, but it is thought to be of use, to make some miscellany in corn, as if you sow a few beans with wheat your wheat will be the better. It hath been observed that the sowing of corn with houseleek doth good. Though grain that toucheth oil or fat receiveth hurt, yet the steeping of it in the dregs of oil, when it beginneth to putrify (which they call *amurca*), is thought to assure it against worms. It is reported also that if corn be mowed it will make the grain longer but emptier, and having more of the husk.

678. You may turn almost all flesh into a fatty substance, if you take flesh and cut it into pieces, and put the pieces into a glass covered with parchment, and so let the glass stand six or seven hours in boiling water. It may be an experiment of profit, for making of fat or grease, for many uses, but then it must be of such flesh as is not edible, as horses, dogs, bears, foxes, badgers, &c.

679. It is reported by one of the ancients that new wine, put into vessels well stopped and the vessels let down into the sea, will accelerate very much the making of them ripe and potable; the same would be tried in wort.

691. It was observed in the great plague of the last year, that there were seen, in divers ditches and low grounds about London, many toads that had tails, two or three inches long at the least; whereas toads (usually) have no tails at all; which argueth a great disposition to putrefaction in the soil and air. It is reported likewise that roots (such as carrots and parsnips) are more sweet and luscious in infectious years than in other years.

692. Wise physicians should with all diligence inquire what simples nature yieldeth that have extreme subtle parts without any mordication or acrimony, for they undermine that which is hard; they open that which is stopped and shut; and they expel that which is offensive, gently, without too much perturbation. Of this kind are elder-flowers, which therefore are proper for the stone; of this kind is the dwarf-pine, which is proper for the jaundice; of this kind is hartshorn, which is proper for agues and infections; of this kind is piony, which is proper for stoppings in the head; of this kind is fumitory, which is proper for the spleen; and a number of others. Generally, divers creatures bred of putrefaction, though they be somewhat loathsome to take, are of this kind, as earth-worms, timber-sowes, snails, &c. And I conceive that the trochicks of vipers (which are so much magnified) and the flesh of snakes some ways condited and corrected (which of late are grown into some credit), are of the same nature. So the parts of beasts putrified (as castoreum and musk, which have extreme subtle parts) are to be placed amongst them. We see also that putrefaction of plants (as agarick and jew's-ear) are of greatest virtue; the cause is, for that putrefaction is the subtlest of all motions in the parts of bodies; and since we cannot take down the lives of living creatures (which some of the Paracelsians say if they could be taken down, would make us immortal); the next is for subtlety of operation, to take bodies putrified, such as may be safely taken.

696. It is affirmed both by the ancient and modern observation, that in furnaces of copper and brass, where chalcites is (which is vitriol) often cast in, to mend the working, there riseth suddenly a fly, which sometimes moveth, as if it took hold on the walls of the furnace; sometimes is seen moving in the fire below, and dieth presently, as soon as it is out of the furnace, which is a noble instance and worthy to be weighed; for it sheweth that as well violent heat of fire as the gentle heat of living creatures, will vivify if it have matter proportionable. Now the great axiom of vivification is, that there must be heat to dilate the spirit of the body, an active spirit to be dilated, matter, vicious or tenacious, to hold in the spirit, and that matter to be put forth and figured. Now a spirit dilated by so ardent a fire as that of the furnace, as soon as ever it cooleth never so little, congealeth presently. And (no doubt) this action is furthered by the chalcites, which hath a spirit, that will put forth and germinate, as we see in chemical trials.

697. It is true that they have (some of them) diaphragm and an intestine; and they have all skins, which in most of the insecta are cast often. They are not generally of long life; yet bees have been known to live seven years; and snakes are thought the rather for the casting of their spoil, to live till they be old; and eels, which many times breed of putrefaction, will live and grow very long; and those that interchange from worms to flies in the summer, and from flies to worms in the winter, have been kept in boxes four years at the least.

698. The insecta have voluntary motion, and therefore imagination; and whereas some of the ancients have said, that their motion is indeterminate and their imagination indefinite, it is negligently observed, for ants go right forwards to their hills; and bees do admirably know the way from a flowery heath, two or three miles off, to their hives. It may be gnats and flies have their imagination more mutable and giddy, as small birds likewise have. It is said by some of the ancients that they have only the sense of feeling, which is manifestly untrue; for if they go forth right to a place they must needs have sight; besides, they delight more in one flower or herb than in another, and therefore have taste; and bees are called with sound upon brass, and therefore they have hearing, which sheweth likewise that though their spirits be diffused, yet there is a seat of their senses in their head.

704. The Turkish bow giveth a very forcible shoot; inso-much as it hath been known that the arrow hath pierced a steel target or a piece of brass of two inches thick. But that which is more strange, the arrow, if it be headed with wood, hath been known to pierce through a piece of wood of eight inches thick. And it is certain that we had in use at one time, for sea-fight, short arrows which they called sprights, without any other heads save wood sharpened, which were discharged out of muskets, and would pierce through the sides of ships where a bullet would not pierce. But this dependeth upon one of the greatest secrets in all nature, which is, that similitude of substance will cause attraction where the body is wholly freed from the motion of gravity; for if that were taken away, lead would draw lead, and gold would draw gold, and iron would draw iron, without the help of the loadstone. But this same motion of weight or gravity (which is mere motion of matter, and hath no affinity with the form or kind) doth kill the other motion, except itself be killed by a violent motion: and in

these instances of arrows; for then the motion of attraction by similitude of substance beginneth to show itself.

705. They have in Turkey and the East, certain confections which they call *servets*, which are like to candied conserves, and are made of sugar and lemons, or sugar and citrons, or sugar and violets, and some other flowers, and some mixture of amber for the more delicate persons; and those they dissolve in water, and thereof make their drink, because they are forbidden wine by their law. But I do much marvel that no Englishman, or Dutchman, or German doth set up brewing in Constantinople, considering they have such quantity of barley. For as for the general sort of men, frugality may be the cause of drinking water, for that it is no small saving to pay nothing for one's drink; but the better sort might well be at the cost. And yet I wonder the less at it, because I see France, Italy, or Spain have not taken into use beer or ale, which perhaps if they did, would better both their healths and their complexions. It is likely it would be matter of great gain to any that should begin it in Turkey.

721. Laughing causeth a dilatation of the mouth and lips, a continued expulsion of the breath, with the loud noise which maketh the interjection of laughing, shaking of the breast and sides, running of the eyes with water if it be violent and continued. Wherein first it is to be understood, that laughing is scarce properly a passion, but hath his source from the intellect; for in laughing there ever precedeth a conceit of somewhat ridiculous, and therefore it is proper to man. Secondly, that the cause of laughing is but a light touch of the spirits, and not so deep an impression as in other passions. And therefore (that which hath no affinity with the passions of the mind) it is moved, and that in great vehemency, only by tickling some parts of the body: and we see that men, even in a grieved state of mind, yet cannot sometimes forbear laughing. Thirdly, it is ever joined with some degree of delight: and therefore exhilaration hath some affinity with joy, though it be much lighter motion: *res severa est verum gaudium*. Fourthly, that the object of it is deformity, absurdity, shrewd turns, and the like. Now to speak of the causes of the effects before mentioned, whereunto these general notes give some light. For the dilatation of the mouth and lips, continued expulsion of the breath and voice, and shaking of the breast and sides, they proceed all from the dilatation of the spirits, especially being sudden. So likewise the running of the eyes with

water (as hath been formerly touched, where we spake of the tears of joy and grief), is an effect of dilatation of the spirits. And for suddenness, it is a great part of the matter : for we see that any shrewd turn that lighteth upon another, or any deformity, &c., moveth laughter in the instant, which, after a little time, it doth not. So we cannot laugh at any thing after it is stale, but whilst it is new. And even in tickling, if you tickle the sides, and give warning, or give a hard or continued touch, it doth not move laughter so much.

738. They have in Turkey a drink called Coffa, made of a berry of the same name, as black as soot, and of a strong scent, but not aromatical, which they take, beaten into powder, in water, as hot as they can drink it; and they take it and sit at it in their coffa-houses, which are like our taverns. This drink comforteth the brain and heart, and helpeth digestion. Certainly this berry coffa, the root and leaf betel, the leaf tobacco, and the tear of poppy (opium), of which the Turks are great takers (supposing it expelleth all fear), do all condense the spirits and make them strong and aleger. But it seemeth they are taken after several manners : for coffa and opium are taken down, tobacco but in smoke, and betel is but champed in the mouth with a little lime. It is like there are more of them, if they were well found out and well corrected. Quære of henbane-seed, of mandrake, of saffron-root and flower, of folium indum, of ambergris, of the Assyrian amomum, if it may be had, and of the scarlet powder which they call kermex, and generally of all such things as do inebriate and provoke sleep. Note, that tobacco is not taken in root or seed, which are more forcible ever than leaves.

739. The Turks have a black powder, made of a mineral called alchole, which, with a fine long pencil, they lay under their eyelids, which doth colour them black, whereby the white of the eye is set off more white. With the same powder they colour also the hairs of their eyelids and of their eyebrows, which they draw into embowed arches. You shall find that Xenophon maketh mention that the Medes used to paint their eyes. The Turks use with the same tincture to colour the hair of their heads and beards black : and divers with us that are grown grey, and yet would appear young, find means to make their hair black by combing it (as they say) with a leaden comb, or the like. As for the Chinese, who are of an ill complexion (being olivaster), they paint their cheeks scarlet, especially their king and grandees. Generally, bar-

barous people, that go naked, do not only paint themselves, but they pounce and raze their skin, that the painting may not be taken forth; and they make it into works; so do the West Indians, and so did the ancient Picts and Britons; so that it seemeth men would have the colours of birds' feathers, if they could tell how; or, at least, they will have gay skins instead of gay clothes.

741. The Turks have a pretty art of chamoletting of paper, which is not with us in use. They take divers oiled colours, and put them severally in drops upon water, and stir the water lightly, and then wet their paper (being of some thickness) with it, and the paper will be waved and veined like chamolet or marble.

762. It would be well boulded out whether great refractions may not be made upon reflections, as well as upon direct beams. For example: we see, that take an empty basin, put an angel of gold, or what you will, into it; then go so far from the basin till you cannot see the angel, because it is not in a right line; then fill the basin with water, and you shall see it out of his place because of the reflection. To proceed therefore, put a looking-glass into a basin of water; I suppose you shall not see the image in a right line, or at equal angles, but aside. I know not whether this experiment may not be extended so as you might see the image and not the glass, which for beauty and strangeness were a fine proof: for then you shall see the image like a spirit in the air. As for example: if there be a cistern or pool of water, you shall place over against it a picture of the devil, or what you will, so as you do not see the water; then put a looking-glass in the water; now, if you can see the devil's picture aside, not seeing the water, it will look like a devil indeed. They have an old tale in Oxford, that Friar Bacon walked between two steeples, which was thought to be done by glasses when he walked upon the ground.

776. It is, at this day, in use in Gaza, to couch potsherds or vessels of earth in their walls, to gather the wind from the top, and to pass it down in spouts into rooms. It is a device for freshness in great heats; and it is said there are some rooms in Italy and Spain for freshness and gathering the winds and air in the heats of summer. But they be but pennings of the winds and enlarging them again, and making them reverberate, and go round in circles, rather than this device of spouts in the wall.

785. It hath been noted by the ancients that in full or

impure bodies, ulcers or hurts in the legs are hard to cure; and in the head more easy. The cause is, for that ulcers or hurts in the legs require desiccation, which by the deflexion of humours to the lower parts is hindered; whereas hurts and ulcers in the head require it not, but, contrarywise, dryness maketh them more apt to consolidate.

789. Weigh iron and aquafortis severally, then dissolve the iron in the aquafortis, and weigh the dissolution, and you shall find it to bear as good weight as the bodies did severally, notwithstanding a good deal of waste by a thick vapour that issueth during the working, which sheweth that the opening of a body doth increase the weight. This was tried once or twice, but I know not whether there were any error in the trial.

794. There is in the city of Ticinum, in Italy, a church that hath windows only from above; it is in length an hundred feet, in breadth twenty feet, and in height near fifty, having a door in the midst. It reporteth the voice twelve or thirteen times, if you stand by the close end wall over against the door. The echo fadeth, and dieth by little and little, as the echo at Pont Charenton doth. And the voice soundeth as if it came from above the door. And if you stand at the lower end, or on either side of the door, the echo holdeth, but if you stand in the door, or in the midst just over against the door, not. Note, that all echoes sound better against old walls than new, because they are more dry and hollow.

795. Those effects which are wrought by the percussion of the sence, and by things in fact, are produced likewise in some degree by the imagination. Therefore, if a man see another eat sour or acid things which set the teeth on edge, this object tainteth the imagination; so that he that seeth the thing done by another hath his own teeth also set on edge. So, if a man see another turn swiftly and long, or if he look upon wheels that turn, himself waxeth turn-sick; so if a man be upon a high place without rails or good hold, except he be used to it, he is ready to fall: for imagining a fall, it putteth his spirits into the very action of a fall. So many upon the seeing of others bleed, or strangled, or tortured, themselves are ready to faint, as if they bled, or were in strife.

796. Take a stock gilliflower and tie it gently upon a stick, and put them both into a stoop-glass full of quicksilver, so that the flower be covered; then lay a little weight upon the top of the glass that may keep the stick down; and look upon them after four or five days, and you shall find the flower

fresh, and the stalk harder and less flexible than it was; if you compare it with another flower gathered at the same time it will be the more manifest. This sheweth that bodies do preserve excellently in quicksilver, and not preserve only, but, by the coldness of the quicksilver, indurate: for the freshness of the flower may be merely conservation (which is the more to be observed because the quicksilver presseth the flower); but the stiffness of the stalk cannot be without induration, from the cold (as it seemeth) of the quicksilver.

797. It is reported by some of the ancients, that in Cyprus there is a kind of iron that, being cut into little pieces and put into the ground, if it be well watered, will increase into greater pieces. This is certain and known of old, that lead will multiply and increase, as hath been seen in old statues of stone which hath been put in cellars, the feet of them being bound with leaden bands, where (after a time) there appeared that the lead did swell, insomuch as it hanged upon the stone like warts.

798. I call drowning of metals when that the baser metal is so incorporate with the more rich as it can by no means be separated again, which is a kind of version, though false; as if silver should be inseparably incorporated with gold, or copper and lead with silver. The ancient electrum had in it a fifth of silver to the gold, and made a compound metal as fit for most uses as gold, and more resplendent, and more qualified in some other properties, but then that was easily separated. This to do privily, or to make the compound pass for the rich metal simple is an adulteration, or counterfeiting; but if it be done avowedly, and without disguising, it may be a great saving of the richer metal. I remember to have heard of a man skilful in metals, that a fifteenth part of silver incorporate with gold will not be recovered by any water of separation, except you put a greater quantity of silver to draw to it the less, which, he said, is the last refuge in separations. But that is a tedious way, which no man (almost) will think on. This would be better inquired, and the quantity of the fifteenth turned to a twentieth, and likewise with some little additional that may further the intrinsic incorporation. Note, that silver in gold will be detected by weight, compared with the dimension; but lead in silver (lead being the weightier metal) will not be detected, if you take so much the more silver as will countervail the over weight of the lead.

826. Beasts do take comfort generally in a moist air, and

it maketh them eat their meat better; and, therefore, sheep will get up betimes in the morning to feed against rain; and cattle, and deer, and coneyes will feed hard before rain; and a beifer will put up his nose and snuff in the air against rain.

832. It hath been observed by the ancients, that where a rainbow seemeth to hang over or to touch, there breatheth forth a sweet smell. The cause is, for that this happeneth but in certain matters which have in themselves some sweetness, which the gentle dew of the rainbow doth draw forth: and the like do soft showers, for they also make the ground sweet, but none are so delicate as the dew of the rainbow where it falleth; it may be also that the water itself hath some sweetness, for the rainbow consisteth of a glomeration of small drops, which cannot possibly fall but from the air that is very low, and therefore may hold the very sweetness of the herbs and flowers as a distilled water.

847. Take lead and melt it, and in the midst of it, when it beginneth to congeal, make a little dint or hole, and put quicksilver wrapped in a piece of linen into that hole, and the quicksilver will fix, and run no more, and endure the hammer. This is a noble instance of induration by consent of one body with another, and motion of excitation to imitate; for to ascribe it only to the vapour of lead is less probable. Quarry, whether the fixing may be in such a degree as it will be figured like other metals? for, if so, you may make works of it for some purposes, for they come not near the fire.

848. Sugar hath put down the use of honey, insomuch as we have lost those observations and preparations of honey which the ancients had when it was more in price. First, it seemeth that there was in old time tree-honey as well as bee-honey, which was the tear or blood issuing from the tree; insomuch, as one of the ancients relateth, that in Trebesond there was honey issuing from the box-trees, which made men mad. Again, in ancient time there was a kind of honey which, either of the own nature or by art, would grow as hard as sugar, and was not so luscious as ours. They had also a wine of honey, which they made thus:—They crushed the honey into a great quantity of water, and then strained the liquor, after they boiled it in a copper to the half, then they poured it into earthen vessels for a small time, and after turned it into vessels of wood, and kept it for many years. They have also at this day in Russia, and those northern coun-

tries, mead simple, which (well made and seasoned) is a good wholesome drink, and very clear. They use also in Wales a compound drink of mead, with herbs and spices. But meanwhile it were good, in recompense of that we have lost in honey, there were brought in use a sugar-mead (for so we call it), though without any mixture at all of honey, and to brew it and keep it stale, as they used mead; for certainly, though it would not be so abstersive, and opening, and solutive a drink as mead, yet it will be more grateful to the stomach, and more lenitive, and fit to be used in sharp diseases: for we see that the use of sugar in beer and ale hath good effect in such cases.

859. It is said that witches do greedily eat man's flesh, which, if it be true, besides a devilish appetite in them, it is likely to proceed for that man's flesh may send up high and pleasing vapours, which may stir the imagination, and witches' felicity is chiefly in imagination, as hath been said.

886. It is reported, that amongst the Leucadians in ancient time, upon a superstition, they did use to precipitate a man from a high cliff into the sea, tying about him with strings at some distance many great fowls, and fixing unto his body divers feathers, spread to break the fall. Certainly many birds of good wing (as kites, and the like) would bear up a good weight as they fly, and spreading of feathers thin, and close, and in great breadth, will likewise bear up a great weight, being even laid, without tilting upon the sides. The further extension of this experiment for flying may be thought upon.

887. There is in some places (namely, in Cephalonia) a little shrub which they call holy-oak, or dwarf-oak, upon the leaves whereof there riseth a tumour like a blister, which they gather, and rub out of it a certain red dust, that converteth (after a while) into worms, which they kill with wine (as is reported) when they begin to quicken. With this dust they dye scarlet.

896. There may be other secret effects of the influence of the moon which are not yet brought into observation. It may be, that if it so fall out that the wind be north, or north-east, in the full of the moon it increaseth cold; and if south, or south-west, it disposeth the air for a good while to warmth and rain, which would be observed.

901. Men are to be admonished that they do not withdraw credit from the operations by transmission of spirits and force of imagination, because the effects fail sometimes. For, as in

infection and contagion from body to body (as the plague, and the like). it is most certain that the infection is received, many times, by the body passive; but yet it is by the strength and good disposition thereof repulsed and wrought out before it be formed in a disease; so much more in impressions from mind to mind, or from spirit to spirit, the impression taketh, but is encountered and overcome by the mind and spirit, which is passive before it work any manifest effect; and therefore they work most upon weak minds and spirits, as those of women, sick persons, superstitious and fearful persons, children, and young creatures.

‘*Nescio quis teneros oculus mihi fascinat agnos* :’

The poet speaketh not of sheep, but of lambs. As for the weakness of the power of them upon kings and magistrates, it may be ascribed (besides the main, which is the protection of God over those that execute his place) to the weakness of the imagination of the imaginant; for it is hard for a witch or a sorcerer to put on a belief that they can hurt such persons. Men are to be admonished, on the other side, that they do not easily give place and credit to these operations, because they succeed many times; for the cause of this success is oft to be truly ascribed unto the force of affection and imagination upon the body agent, and then, by a secondary means, it may work upon a divers body, as for example: if a man carry a planet's seal, or a ring, or some part of a beast, believing strongly that it will help him to obtain his love, or to keep him from danger of hurt in fight, or to prevail in a suit, &c., it may make him more active and industrious, and again, more confident and persisting than otherwise he would be. Now, the great effects that may come of industry and perseverance (especially in civil business) who knoweth not? For we see audacity doth almost blind and mate the weaker sort of minds, and the state of human actions is so variable, that to try things oft and never to give over doth wonders; therefore it were a mere fallacy and mistaking to ascribe that to the force of imagination upon another body, which is but the force of imagination upon the proper body: for there is no doubt but that imagination and vehement affection work greatly upon the body of the imaginant, as we shall show in due place.

Men are to be admonished, that as they are not to mistake the causes of these operations, so much less they are to mistake

the fact or effect, and rashly to take that for done which is not done. And, therefore, as divers wise judges have prescribed and cautioned, men may not too rashly believe the confession of witches nor yet the evidence against them: for the witches themselves are imaginative, and believe oft-times they do that which they do not, and people are credulous on that point, and ready to impute accidents and natural operations to witchcraft. It is worthy the observing, that both in antient and late times (as in the Thessalian witches, and the meetings of witches that have been recorded by so many late confessions) the great wonders which they tell of carrying in the air, transforming themselves into other bodies, &c., are still reported to be wrought, not by incantation or ceremonies, but by ointments, and anointing themselves all over. This may justly move a man to think that these fables are the effects of imagination; for it is certain that ointments do all (if they be laid on anything thick) by stopping of the pores, shut in the vapours, and send them to the head extremely; and for the particular ingredients of those magical ointments it is like they are opiate, and soporiferous; for anointing of the forehead, neck, feet, back-bone, we know is used for procuring dead sleeps: and if any man say that this effect would be better done by inward potions, answer may be made, that the medicines which go to the ointments are so strong, that if they were used inwards they would kill those that use them; and, therefore, they work potently, though outwards.

928. The following of the plough hath been approved for refreshing the spirits and procuring appetite; but to do it in the ploughing for wheat or rye is not so good, because the earth hath spent her sweet breath in vegetables put forth in summer. It is better, therefore, to do it when you sow barley; but, because ploughing is tied to seasons, it is best to take the air of the earth new turned up by digging with the spade, or standing by him that diggeth. Gentlewomen may do themselves much good by kneeling upon a cushion and weeding; and these things you may practise in the best seasons, which is ever the early spring, before the earth putteth forth the vegetables, and in the sweetest earth you can choose; it would be done also when the dew is a little off the ground, lest the vapour be too moist. I knew a great man that lived long, who had a clean clod of earth brought to him every morning as he sat in his bed, and he would hold his head over it a good pretty while. I commend, also, sometimes in digging of new earth, to pour in

some malmsey, or Greek wine, that the vapour of the earth and wine together may comfort the spirits the more, provided always it be not taken for a heathen sacrifice, or libation to the earth.

934. It is certain that odours do in a small degree nourish, especially the odour of wine; and we see men an hungred do love to smell hot bread. It is related that Democritus, when he lay a dying, heard a woman in the house complain that she should be kept from being at a feast and solemnity (which she much desired to see), because there would be a corpse in the house; whereupon he caused loaves of new bread to be sent for, and opened them and poured a little wine into them, and so kept himself alive with the odour of them till the feast was past. I knew a gentleman that would fast sometimes three or four, yea, five days without meat, bread, or drink; but the same man used to have continually a great whisp of herbs that he smelled on, and, amongst those herbs, some esculent herbs of strong scent, as onions, garlic, leeks, and the like.

937. It were good for men to think of having healthful air in their houses, which will never be if the rooms be low-roofed, or full of windows and doors: for the one maketh the air close and not fresh, and the other maketh it exceeding unequal, which is a great enemy to health; the windows also should not be high up to the roof (which is in use for beauty and magnificence), but low. Also, stone walls are not wholesome, but timber is more wholesome, and especially brick: nay, it hath been used by some with great success to make their walls thick, and to put a lay of chalk between the bricks to take away all dampishness.

939. It is mentioned in some stories, that where children have been exposed or taken away young from their parents, and that afterwards they have approached to their parents' presence, the parents (though they have not known them) have had a secret joy or other alteration thereupon.

940. There was an Egyptian soothsayer that made Anthonius believe that his genius (which otherwise was brave and confident) was, in the presence of Octavianus Cæsar, poor and cowardly; and therefore he advised him to absent himself (as much as he could) and remove far from him. The soothsayer was thought to be suborned by Cleopatra, to make him live in Egypt and other remote places from Rome: howsoever the conceit of a predominate or mastering spirit of one man over another, is antient, and received still even in vulgar opinion.

941. There are conceits, that some men that are of an ill and melancholy nature do incline the company into which they come, to be sad and ill disposed; and contrarywise, that others that are of a jovial nature do dispose the company to be merry and cheerful. And again, that some men are lucky to be kept company with and employed; and others unlucky. Certainly it is agreeable to reason, that there are, at the least, some light effluxions from spirit to spirit, when men are in presence one with another, as well as from body to body.

942. It hath been observed, that old men who have loved young company, and been conversant continually with them, have been of long life; their spirits (as it seemeth) being recreated by such company. Such were the antient sophists and rhetoricians, which ever had young auditors and disciples, as Gorgias, Protagoras, Isocrates, &c., who lived till they were an hundred years old; and so likewise did many of the grammarians and schoolmasters, such as was Orbilius, &c.

943. Audacity and confidence doth, in civil business, so great effects as a man may reasonably doubt, that besides the very daring, and earnestness, and persisting, and importunity, there should be some secret binding and stooping of other men's spirits to such persons.

946. The power of imagination is in three kinds: the first, upon the body of the imaginant, including likewise the child in the mother's womb; the second is, the power of it upon dead bodies, as plants, wood, stone, metal, &c.; the third is, the power of it upon the spirits of men and living creatures; and with this last we will only meddle.

The problem therefore is, whether a man constantly and strongly believing that such a thing shall be (as that such an one will love him; or that such an one will grant him his request; or that such an one shall recover a sickness, or the like), it doth help any thing to the effecting of the thing itself. And here again we must warily distinguish; for it is not meant (as hath been partly said before) that it should help by making a man more stout or more industrious (in which kind constant belief doth much), but merely by a secret operation, or binding, or changing the spirit of another; and in this it is hard (as we began to say) to make any new experiment; for I cannot command myself to believe what I will, and so no trial can be made: nay it is worse; for whatsoever a man imagineth doubtingly or with fear, must needs do hurt, if imagination have any power at all; for a man representeth that oftener that he feareth, than the contrary.

The help therefore is, for a man to work by another, in whom he may create belief, and not by himself, until himself have found by experience that imagination doth prevail; for then experience worketh in himself belief, if the belief that such a thing shall be, be joined with a belief that his imagination may procure it.

For example, I related one time to a man that was curious and vain enough in these things, that I saw a kind of juggler that had a pair of cards, and would tell a man what card he thought. This pretended learned man told me it was a mistaking in me; for, said he, it was not the knowledge of the man's thought (for that is proper to God); but it was the enforcing of a thought upon him, and binding his imagination by a stronger, that he could think no other card. And thereupon he asked me a question or two, which I thought he did but cunningly, knowing before what used to be the feats of the juggler. Sir, said he, do you remember whether he told the card the man thought, himself, or bade another to tell it? I answered (as was true), that he bade another tell it. Whereunto he said, So I thought; for, said he, himself could not have put on so strong an imagination; but by telling the other the card (who believed that the juggler was some strange man and could do strange things), that other man caught a strong imagination. I hearkened unto him, thinking for a vanity he spake prettily. Then he asked me another question. Saith he, Do you remember whether he bade them an think the card first, and afterwards told the other man in his ear what he should think; or else that he did whisper first in the man's ear that should tell the card, telling that such a man should think such a card, and after bade the man think a card? I told him (as was true) that he did first whisper the man in the ear, that such a man should think such a card; upon this the learned man did much exult, and please himself, saying, Lo, you may see that my opinion is right; for if the man had thought first his thought had been fixed; but the other imagining first, bound his thought. Which though it did somewhat sink with me, yet I made it lighter than I thought and said; I thought it was confederacy between the juggler and the two servants, though, indeed, I had no reason so to think, for they were both my father's servants, and he had never played in the house before. The juggler also did cause a garter to be held up; and took upon him to know that such an one should point in such a place of the garter, as it should be near so many

inches to the longer end and so many to the shorter; and still he did it, by first telling the imaginer, and after bidding the actor think.

951. When you work by the imagination of another, it is necessary that he by whom you work have a precedent opinion of you, that you can do strange things, or that you are a man of art, as they call it; for else the simple affirmation to another that this or that shall be, can work but a weak impression in his imagination.

952. It were good, because you cannot discern fully of the strength of imagination in one man more than another, that you did use the imagination of more than one, that so you may light upon a strong one; as if a physician should tell three or four of his patient's servants that their master shall surely recover.

953. The imagination of one that you shall use (such is the variety of men's minds), cannot be always alike constant and strong; and if the success follow not speedily, it will faint and leese strength. To remedy this, you must pretend to him, whose imagination you use, several degrees of means by which to operate; as to prescribe him, that every three days, if he find not the success apparent, he do use another root or part of a beast, or ring, &c., as being of more force; and if that fail, another; and if that, another, till seven times. Also you must prescribe a good large time for the effect you promise; as if you should tell a servant of a sick man that his master shall recover, but it will be fourteen days ere he findeth it apparently, &c.; all this to entertain the imagination, that it waver less.

957. Trials likewise would be made upon plants, and that diligently; as if you should tell a man that such a tree would die this year; and will him at these and these times to go unto it to see how it thriveth. As for inanimate things, it is true that the motions of shuffling of cards, or casting of dice, are very light motions; and there is a folly very useful, that gamesters imagine that some that stand by them bring them ill luck. There would be trial also made of holding a ring by a thread in a glass, and telling him that holdeth it before, that it shall strike so many times against the side of the glass and no more; or of holding a key between two men's fingers without a charm, and to tell those that hold it, that at such name it shall go off their fingers, for these two are extreme light motions. And howsoever I have no opinion of these

things, yet so much I conceive to be true, that strong imagination hath more force upon things living, or that have been living, than things merely inanimate; and more force likewise upon light and subtle motions than upon motions vehement or ponderous.

958. It is an usual observation, that if the body of one murdered be brought before the murderer, the wounds will bleed afresh. Some do affirm that the dead body, upon the presence of the murderer, hath opened the eyes; and that there have been such like motions, as well where the party murdered hath been strangled or drowned, as where they have been killed by wounds. It may be that this participateth of a miracle, by God's just judgment, who usually bringeth murders to light; but if it be natural, it must be referred to imagination.

960. There be many things that work upon the spirits of man by secret sympathy and antipathy; the virtues of precious stones worn have been antiently and generally received, and curiously assigned to work several effects. So much is true, that stones have in them fine spirits, as appeareth by their splendour; and therefore they may work by consent upon the spirits of men to comfort and exhilarate them. Those that are the best for that effect are the diamond, the emerald, the jacinth oriental, and the gold-stone, which is the yellow topaz. As for their particular properties there is no credit to be given to them: but it is manifest that light, above all things, excelleth in comforting the spirits of men; and it is very probable that light varied doth the same effect with more novelty, and this is one of the causes why precious stones comfort. And therefore it were good to have tinted lanthorns, or tinted screens, of glass coloured into green, blue, carnation, crimson, purple, &c., and to use them with candles in the night; so likewise to have round glasses, not only of glass coloured through, but with colours laid between crystals, with handles to hold in one's hand. Prisms are also comfortable things; they have, of Paris-work, looking-glasses bordered with broad borders of small crystal and great counterfeit precious stones of all colours, that are most glorious and pleasant to behold, especially in the night. The pictures of Indian feathers are likewise comfortable and pleasant to behold; so also fair and clear pools do greatly comfort the eyes and spirits, especially when the sun is not glaring but overcast, or when the moon shineth.

961. There be divers sorts of bracelets fit to comfort the

spirits, and they be of three intentions : refrigerant, corroborant, and aperient. For refrigerant, I wish them to be of pearl, or of coral, as is used ; and it hath been noted that coral, if the party that weareth it be ill disposed, will wax pale, which I believe to be true, because otherwise distemper of heat will make coral lose colour. I commend also beads, or little plates of lapis lazuli, and beads of nitre, either alone or with some cordial mixture.

962. For corroboration and comfortation, take such bodies as are of astringent quality without manifest cold ; I commend bead-amber, which is full of astringtion, but yet is unctuous and not cold, and is conceived to impinguate those that wear such beads ; I commend also beads of hartshorn and ivory, which are of the like nature ; also orange-beads ; also beads of lignum aloes, macerated first in rose-water and dried.

977. It hath been observed that the diet of women with child doth work much upon the infant : as if the mother eat quinces much and coriander-seed (the nature of both which is to repress and stay vapours that ascend to the brain) it will make the child ingenious ; and on the contrary side, if the mother eat much onions or beans, or such vaporous food, or drinke wine or strong drink immoderately, or fast much, or be given to much musing (all which send or draw vapours to the head), it endangereth the child to become lunatic or of imperfect memory ; and I make the same judgment of tobacco often taken by the mother.

978. The writers of natural magic report that the heart of an ape worn near the heart, comforteth the heart and increaseth audacity. It is true that the ape is a merry and bold beast ; and that the same heart, likewise, of an ape applied to the neck or head helpeth the wit, and is good for the falling sickness. The ape also is a witty beast and hath a dry brain, which may be some cause of attenuation of vapours in the head ; yet it is said to move dreams also ; it may be the heart of a man would do more, but that it is more against men's minds to use it, except it be in such as wear the reliques of saints.

980. Mummy hath great force in stanching of blood, which, as it may be ascribed to the mixture of balms that are glutinous, so it may also partake of a secret propriety, in that the blood draweth man's flesh : and it is approved, that the moss which groweth upon the skull of a dead man unburied will stanch blood potently ; and so do the dregs or powder of blood, severed from the water and dried.

985. It is a common experience that dogs know the dog-killer, when as in times of infection some petty fellow is sent out to kill the dogs; and that though they have never seen him before, yet they will all come forth and bark and fly at him.

986. The relations touching the force of imagination and the secret instincts of nature are so uncertain, as they require a great deal of examination ere we conclude upon them, I would have it first thoroughly inquired whether there be any secret passages of sympathy between persons of near blood, as parents, children, brothers, sisters, nurse-children, husbands, wives, &c. There be many reports in history that, upon the death of persons of such nearness, men have had an inward feeling of it. I myself remember, that being in Paris, and my father dying in London, two or three days before my father's death I had a dream, which I told to divers English gentlemen: that my father's house in the country was plastered all over with black mortar. There is an opinion abroad (whether idle or no I cannot say), that loving and kind husbands have a sense of their wives' breeding child by some accident in their own body.

987. Next to those that are near in blood there may be the like passage and instincts of nature between great friends and enemies; and sometimes the revealing is unto another person and not to the party himself. I remember Philippus Commineus (a grave writer) reporteth, that the archbishop of Vienna (a reverend prelate) said one day after mass, to King Louis the Eleventh of France, "Sir, your mortal enemy is dead." What time Charles Duke of Burgundy was slain at the battle of Granson, against the Switzers. Some trial also would be made whether pact or agreement do anything; as if two friends should agree that such a day in every week they, being in far distant places, should pray one for another, or should put on a ring or tablet one for another's sake; whether, if one of them should break their vow and promise, the other should have any feeling of it in absence.

988. If there be any force in imaginations and affections of singular persons, it is probable the force is much more in the joint imaginations and affections of multitudes: as if a victory should be won or lost in remote parts, whether is there not some sense thereof in the people whom it concerneth, because of the great joy or grief that many men are possessed with at once? Pius Quintus, at the very time when that memorable victory

was won by the Christians against the Turks, at the naval battle of Lepanto, being then hearing of causes in the Consistory, brake off suddenly and said to those about him, "It is now more than time we should give thanks to God for the great victory he hath granted us against the Turks." It is true, that victory had a sympathy with his spirit, for it was merely his work to conclude that league. It may be that revelation was divine; but what shall we say then to a number of examples amongst the Grecians and Romans? Where the people, being in theatres at plays, have had news of victories and overthrows, some few days before any messenger could come.

It is true that that may hold in these things which is the general root of superstition, namely, that men observe when things hit, and not when they miss, and commit to memory the one and forget and pass over the other.

997. The sympathy of individuals that have been entire or have touched is, of all others, the most incredible; yet according unto our faithful manner of examination of nature, we will make some little mention of it; the taking away of warts, by rubbing them with somewhat that afterward is put to waste and consume, is a common experiment; and I do apprehend it the rather, because of mine own experience; I had from my childhood a wart upon one of my fingers; afterwards, when I was about sixteen years old, being then at Paris, there grew upon both my hands a number of warts (at least an hundred) in a month's space; the English ambassador's lady, who was a woman far from superstition, told me one day she would help me away with my warts: whereupon she got a piece of lard with the skin on, and rubbed the warts all over with the fat side, and amongst the rest that wart which I had from my childhood; then she nailed the piece of lard with the fat towards the sun, upon a post of her chamber window, which was to the south. The success was, that within five weeks' space, all the warts went quite away: and that wart, which I had so long endured, for company; but at the rest I did little marvel, because they came in a short time and might go away in a short time again, but the going of that which had stayed so long doth yet stick with me. They say the like is done by rubbing of warts with a green elder stick, and then burying the stick to rot in muck. It would be tried with corns and wens and such other excrescences; I would have it also tried with some parts of living creatures that are nearest

the nature of excrescences : as the combs of cocks, the spurs of cocks, the horns of beasts, &c. And I would have it tried both ways, both by rubbing those parts with lard or elder, as before; and by cutting off some piece of those parts, and laying it to consume, to see whether it will work any effect towards the consumption of that part which was once joined with it.

1000. The delight which men have in popularity, fame, honour, submission and subjection of other men's minds, wills, or affections (although these things may be desired for other ends), seemeth to be a thing in itself, without contemplation of consequence, grateful and agreeable to the nature of man. This thing surely is not without some signification, as if all spirits and souls of men came forth out of one divine limbus; else why be men so much affected with that which others think or say? The best temper of minds desireth good name and true honour; the lighter, popularity and applause; the more depraved, subjection and tyranny, as is seen in great conquerors and troublers of the world, and yet more in arch-heretics, for the introducing of new doctrines is likewise an affectation of tyranny over the understandings and beliefs of men.

All this seems a strange mixture of knowledge and ignorance, of philosophic insight and childish credulity, of light and darkness, to us looking back upon it from our more advanced station in the ascending road of physical discovery. It is truly a wood, as Bacon has himself called it, in which he often appears to wander without path or progress. His conjectures and articles of belief may now and then make us smile; but there is after all something very touching in the contemplation of such an intellect thus groping its way, and staggering and stumbling about, where we walk on a plain road and in the clear day. It reminds one of the blinded Samson and his pathetic quest:—

A little onward lend thy guiding hand
To these dark steps, a little further on.

The following passage from Tenison's Introduction to the *Baconiana* ought not to be here omitted :—" Whilst I am speaking of this work of his lordship's of *Natural History*, there comes to my mind a very memorable relation, reported by him who bare a part in it, the

Reverend Dr. Rawley. One day his lordship was dictating to that Doctor some of the experiments in his *Sylva*. The same day he had sent a friend to court to receive for him a final answer touching the effect of a grant which had been made him by King James. He had hitherto only hope of it, and hope deferred; and he was desirous to know the event of the matter, and to be freed, one way or other, from the suspense of his thoughts. His friend, returning, told him plainly that he must thenceforth despair of that grant, how much soever his fortunes needed it. *Be it so*, said his lordship; and then he dismissed his friend very cheerfully, with thankful acknowledgments of his service. His friend being gone, he came straightway to Dr. Rawley, and said thus to him: *Well, Sir! Your business won't go on; let us go on with this, for this is in our power.* And then he dictated to him afresh for some hours without the least hesitancy of speech or discernible interruption of thought."

The *Sylva Sylvarum* was accompanied on its first appearance by a very remarkable piece entitled 'New Atlantis, a Work Unfinished.' This is a philosophical romance, unfortunately only begun, the name being taken from Plato's fiction of the great lost island of the Western Ocean. A Latin translation of the fragment, which would seem to have been executed by Bacon himself, was afterwards published by Rawley in his collection of Bacon's Moral and Civil Writings ('*Moralium et Civilium Tomus*'), folio, Lon. 1638. The pieces in that volume, as we have already had occasion to remark, are described on the title-page as having been all, with a few exceptions, rendered into Latin by their author; and Rawley in his Life of Bacon expressly mentions the Latin translation of the *New Atlantis* as one of the performances of the last five years of his lordship's life. In an advertisement to the Reader prefixed to the English edition Rawley says:—"This fable my lord devised, to the end that he might exhibit therein a model or description of a college, instituted for the in-

terpreting of nature and the producing of great and marvellous works for the benefit of men, under the name of Solomon's House, or the College of the Six Days' Works. And even so far his lordship hath proceeded as to finish that part. . . . His lordship thought also in this present fable to have composed a frame of laws, or of the best state or mould of a commonwealth; but, foreseeing it would be a long work, his desire of collecting the Natural History diverted him, which he preferred many degrees before it." And he adds :—" This work of the *New Atlantis*, as much as concerneth the English edition, his lordship designed for this place; in regard it hath so near affinity, in one part of it, with the preceding *Natural History*."

The *New Atlantis* would be especially interesting were it but as being the only example we have of any attempt made by Bacon in the character of a writer of fiction. But it is besides one of the most brilliant productions of his pen. It has no passion nor any dramatic exhibition of incident or character; but with a scene so removed from our ordinary humanity nothing of that sort was required or even admissible; in a copious and easy-flowing vein of invention it does not yield to any other performance of the same kind; no mere narrative skill of a higher order is to be anywhere found; and in beauty and expressiveness of language, combined with general abundance of thought, only the highest writers of any kind have equalled or approached it. We will give it with very little abridgment. It commences as follows :—

We sailed from Peru (where we had continued by the space of one whole year) for China and Japan, by the South-Sea, taking with us victuals for twelve months, and had good winds from the east, though soft and weak, for five months' space and more; but then the wind came about and settled in the west for many days, so as we could make little or no way, and were sometimes in purpose to turn back. But then again there arose strong and great winds from the south, with a point east, which carried us up (for all that we could do) towards the north; by which time our victuals failed us, though we had

made good spare of them. So that finding ourselves in the midst of the greatest wilderness of waters in the world without victual, we gave ourselves for lost men, and prepared for death. Yet we did lift up our hearts and voices to God above, who sheweth his wonders in the deep, beseeching him of his mercy, that as in the beginning He discovered the face of the deep, and brought forth dry land, so He would now discover land to us, that we might not perish. And it came to pass, that the next day about evening, we saw within a kenning before us, towards the north, as it were thicker clouds, which did put us in some hope of land, knowing how that part of the South-Sea was utterly unknown, and might have islands or continents that hitherto were not come to light. Wherefore we bent our course thither, where we saw the appearance of land, all that night; and in the dawning of the next day we might plainly discern that it was a land flat to our sight and full of boscage, which made it show the more dark; and after an hour and a half's sailing we entered into a good haven, being the port of a fair city, not great indeed, but well built, and that gave a pleasant view from the sea. And we, thinking every minute long till we were on land, came close to the shore and offered to land. But straightways we saw divers of the people, with bastons in their hands (as it were), forbidding us to land; yet without any cries or fierceness, but only as warning us off by signs that they made. Whereupon, being not a little discomforted, we were advising with ourselves what we should do; during which time there made forth to us a small boat, with about eight persons in it, whereof one of them had in his hand a tipstaff of a yellow cane, tipped at both ends with blue, who made aboard our ship without any show of distrust at all; and when he saw one of our number present himself somewhat afore the rest, he drew forth a little scroll of parchment (somewhat yellower than our parchment, and shining like the leaves of writing-tables, but otherwise soft and flexible), and delivered it to our foremost man; in which scroll were written in ancient Hebrew, and in ancient Greek, and in good Latin of the school, and in Spanish, these words: "Land ye not, none of you, and provide to be gone from this coast within sixteen days, except you have further time given you; meanwhile, if you want fresh water or victual, or help for your sick, or that your ship needeth repair, write down your wants, and you shall have that which belongeth to mercy." This scroll was signed with a stamp of cherubims' wings, not spread, but

hanging downwards, and by them a cross : this being delivered, the officer returned, and left only a servant with us to receive our answer. Consulting hereupon amongst ourselves we were much perplexed ; the denial of landing and hasty warning us away troubled us much ; on the other side, to find that the people had languages and were so full of humanity did comfort us not a little ; and above all, the sign of the cross to that instrument was to us a great rejoicing, and, as it were, a certain presage of good. Our answer was in the Spanish tongue : that for our ship it was well, for we had rather met with calms and contrary winds than any tempests ; for our sick, they were many and in very ill case, so that if they were not permitted to land they ran in danger of their lives. Our other wants we set down in particular, adding that we had some little store of merchandize, which, if it pleased them to deal for, it might supply our wants without being chargeable unto them. We offered some reward in pistols unto the servant, and a piece of crimson velvet to be presented to the officer, but the servant took them not, nor would scarce look upon them ; and so left us, and went back in another little boat which was sent for him.

About three hours after we had dispatched our answer there came towards us a person (as it seemed) of place. He had on him a gown with wide sleeves, of a kind of water chamolet, of an excellent azure colour, far more glossy than ours ; his under apparel was green, and so was his hat, being in the form of a turban, daintily made, and not so huge as the Turkish turbans, and the locks of his hair came down below the brims of it. A reverend man was he to behold ; he came in a boat gilt in some part of it, with four persons more only in that boat, and was followed by another boat wherein were some twenty. When he was come within a flight-shot of our ship, signs were made to us that we should send forth some to meet him upon the water, which we presently did in our ship-boat, sending the principal man amongst us save one, and four of our number with him. When we were come within six yards of their boat they called to us to stay, and not to approach further, which we did. And thereupon the man, whom I before described, stood up, and with a loud voice, in Spanish, asked, "Are ye Christians?" We answered, we were, fearing the less because of the cross we had seen in the subscription ; at which answer the said person lift up his right hand towards heaven and drew it softly to his mouth (which is the gesture they use

when they thank God), and then said: "If you will swear (all of you), by the merits of the Saviour, that ye are no pirates, nor have shed blood lawfully nor unlawfully within forty days past, you may have license to come on land." We said we were all ready to take that oath; whereupon, one of those that were with him, being (as it seemed) a notary, made an entry of this act; which done, another of the attendants of the great person, which was with him in the same boat, after his lord had spoken a little to him, said aloud, "My lord would have you know, that it is not of pride or greatness that he cometh not aboard your ship; but for that, in your answer, you declare that you have many sick amongst you, he was warned by the conservator of health of the city that he should keep a distance." We bowed ourselves towards him, and answered, we were his humble servants, and accounted for great honour and singular humanity towards us that which was already done; but hoped well that the nature of the sickness of our men was not infectious. So he returned, and a while after came the notary to us aboard our ship, holding in his hand a fruit of that country like an orange, but of colour between orange-tawny and scarlet, which cast a most excellent odour; he used it (as it seemeth) for a preservative against infection. He gave us our oath, by the name of Jesus and his merits; and after, told us that the next day by six of the clock in the morning, we should be sent to and brought to the stranger's house (so he called it) where we should be accommodated of things both for our whole and for our sick, so he left us; and when we offered him some pistolets, he, smiling, said, he must not be twice paid for one labour: meaning (as I take it), that he had salary sufficient of the state for his service: for (as I after learned) they call an officer that taketh rewards twice paid.

The next morning early there came to us the same officer that came to us at first with his cane, and told us he came to conduct us to the strangers' house, and that he had prevented the hour because we might have the whole day before us for our business; "For," said he, "if you will follow my advice, there shall first go with me some few of you and see the place, and how it may be made convenient for you; and then you may send for your sick, and the rest of your number which ye will bring on land." We thanked him, and said, that this care which he took of desolate strangers God would reward; and so six of us went on land with him; and when

we were on land he went before us, and turned to us, and said, he was but our servant and our guide. He led us through three fair streets, and all the way we went there were gathered some people on both sides, standing in a row, but in so civil a fashion as if it had been not to wonder at us, but to welcome us; and divers of them as we passed by them put their arms a little abroad, which is their gesture when they bid any welcome. The strangers' house is a fair and spacious house, built of brick of somewhat a bluer colour than our brick, and with handsome windows, some of glass, some of a kind of cambric oiled. He brought us first into a fair parlour above stairs, and then asked us what number of persons we were, and how many sick. We answered we were in all (sick and whole) one and fifty persons, whereof our sick were seventeen. He desired us to have patience a little, and to stay till he came back to us, which was about an hour after, and then he led us to see the chambers which were provided for us, being in number nineteen; they having cast it (as it seemeth) that four of those chambers, which were better than the rest, might receive four of the principal men of our company and lodge them alone by themselves, and the other fifteen chambers were to lodge us two and two together. The chambers were handsome and cheerful chambers, and furnished civilly. Then he led us to a long gallery, like a dorture, where he showed us all along the one side (for the other side was but wall and window) seventeen cells, very neat ones, having partitions of cedar-wood, which gallery and cells, being in all forty (many more than we needed), were instituted as an infirmary for sick persons; and he told us withal, that as any of our sick waxed well, he might be removed from his cell to a chamber: for which purpose there were set forth ten spare chambers, besides the number we spake of before. This done, he brought us back to the parlour, and lifting up his cane a little (as they do when they give any charge or command), said to us, "Ye are to know that the custom of the land requireth that, after this day and to-morrow (which we give you for removing your people from your ship), you are to keep within doors for three days: but let it not trouble you, nor do not think yourselves restrained, but rather left to your rest and ease. You shall want nothing, and there are six of our people appointed to attend you for any business you may have abroad." We gave him thanks with all affection and respect, and said, "God surely is manifested in this land." We offered him also twenty pis-

tolets : but he smiled, and only said, "What? twice paid!" and so he left us. Soon after our dinner was served in, which was right good viands, both for bread and meat, better than any collegiate diet that I have known in Europe. We had also drink of three sorts, all wholesome and good : wine of the grape, a drink of grain, such as is with us our ale, but more clear, and a kind of cider made of a fruit of that country, a wonderful pleasing and refreshing drink ; besides, there were brought in to us great store of those scarlet oranges for our sick, which they said were an assured remedy for sickness taken at sea. There was given us also a box of small grey or whitish pills, which they wished our sick should take one of the pills every night before sleep, which they said would hasten their recovery. The next day, after that our trouble of carriage and removing of our men and goods out of our ship was somewhat settled and quiet, I thought good to call our company together, and when they were assembled, said unto them, "My dear friends, let us know ourselves, and how it standeth with us. We are men cast on land, as Jonas was, out of the whale's belly, when we were as buried in the deep ; and now we are on land we are hut between death and life, for we are beyond both the old world and the new ; and whether ever we shall see Europe God only knoweth. It is a kind of miracle hath brought us hither, and it must be little less that shall bring us hence ; therefore, in regard of our deliverance past, and our danger present and to come, let us look up to God, and every man reform his own ways. Besides, we are come here amongst a Christian people full of piety and humanity ; let us not bring that confusion of face upon ourselves as to show our vices or unworthiness before them. Yet there is more : for they have by commandment (though in form of courtesy) cloistered us within these walls for three days ; who knoweth whether it be not to take some taste of our manners and conditions, and if they find them bad, to banish us straightways ; if good, to give us further time ? For these men that they have given us for attendance may withal have an eye upon us. Therefore, for God's love, and as we love the weal of our souls and bodies, let us so behave ourselves as we may be at peace with God and may find grace in the eyes of this people." Our company with one voice thanked me for my good admonition, and promised me to live soberly and civilly, and without giving any the least occasion of offence. So we spent our three days joyfully, and without care, in expectation what

would be done with us when they were expired ; during which time we had every hour joy of the amendment of our sick, who thought themselves cast into some divine pool of healing, they mended so kindly and so fast.

The morrow after our three days were past, there came to us a new man that we had not seen before, clothed in blue as the former was, save that his turban was white, with a small red cross on the top ; he had also a tippet of fine linen. At his coming in he did bend to us a little, and put his arms abroad. We, of our parts, saluted him in a very lowly and submissive manner, as looking that from him we should receive sentence of life or death. He desired to speak with some few of us ; whereupon six of us only stayed, and the rest avoided the room. He said, "I am, by office, governor of this house of strangers, and by vocation I am a Christian priest, and therefore am come to you to offer you my service, both as strangers and chiefly as Christians. Some things I may tell you which I think you will not be unwilling to hear. The state hath given you license to stay on land for the space of six weeks ; and let it not trouble you if your occasions ask further time, for the law in this point is not precise ; and I do not doubt but myself shall be able to obtain for you such further time as shall be convenient. Ye shall also understand that the strangers' house is at this time rich, and much aforehand, for it hath laid up revenue these thirty-seven years : for so long it is since any stranger arrived in this part ; and, therefore, take ye no care, the state will defray you all the time you stay ; neither shall you stay one day less for that. As for any merchandize you have brought, ye shall be well used, and have your return either in merchandize, or in gold and silver, for to us it is all one. And if you have any other request to make, hide it not, for ye shall find we will not make your countenance to fall by the answer ye shall receive. Only this I must tell you, that none of you must go above a karan (that is with them a mile and a half) from the walls of the city without special leave." We answered, after we had looked a while upon one another, admiring this gracious and parent-like usage, that we could not tell what to say, for we wanted words to express our thanks, and his noble free offers left us nothing to ask. It seemed to us that we had before us a picture of our salvation in heaven ; for we that were a while since in the jaws of death, were now brought into a place where we found nothing but consolations. For the commandment laid upon us, we would

not fail to obey it, though it was impossible but our hearts should be inflamed to tread further upon this happy and holy ground. We added, that our tongues should first cleave to the roofs of our mouths ere we should forget either this reverend person, or this whole nation in our prayers. We also most humbly besought him to accept of us as his true servants, by as just a right as ever men on earth were bounden, laying and presenting both our persons and all we had at his feet. He said, he was a priest, and looked for a priest's reward, which was our brotherly love and the good of our souls and bodies. So he went from us, not without tears of tenderness in his eyes, and left us also confused with joy and kindness, saying amongst ourselves, that we were come into a land of angels, which did appear to us daily, and prevent us with comforts which we thought not of, much less expected.

The next day about ten of the clock, the Governor came to us again, and after salutations, said familiarly that he was come to visit us, and called for a chair and sat him down; and we being some ten of us (the rest were of the meaner sort or else gone abroad) sat down with him; and when we were set he began thus. We of this island of Bensalem (for so they call it in their language) have this; that by means of our solitary situation, and of the laws of secrecy which we have for our travellers, and our rare admission of strangers, we know well most part of the habitable world, and are ourselves unknown; therefore because he that knoweth least is fittest to ask questions, it is more reason, for the entertainment of the time, that ye ask me questions than that I ask you. We answered, that we humbly thanked him that he would give us leave so to do; and that we conceived by the taste we had already, that there was no worldly thing on earth more worthy to be known than the state of that happy land. But above all, we said, since that we were met from the several ends of the world, and hoped assuredly that we should meet one day in the Kingdom of Heaven (for that we were both parts Christians), we desired to know (in respect that land was so remote, and so divided by vast and unknown seas from the land where our Saviour walked on earth) who was the apostle of that nation, and how it was converted to the faith. It appeared in his face that he took great contentment in this our question. He said, "Ye knit my heart to you, by asking this question in the first place; for it sheweth that you first seek the Kingdom of Heaven; and I shall gladly and briefly satisfy your demand."

"About twenty years after the ascension of our Saviour, it came to pass, that there was seen by the people of Rensusa (a city upon the eastern coast of our island) within night (the night was cloudy and calm), as it might be some mile in the sea, a great pillar of light, not sharp, but in form of a column or cylinder, rising from the sea, a great way up towards heaven; and on the top of it was seen a large cross of light, more bright and resplendent than the body of the pillar: upon which so strange a spectacle the people of the city gathered apace together upon the sands to wonder; and so after put themselves into a number of small boats to go nearer to this marvellous sight; but when the boats were come within about sixty yards of the pillar, they found themselves all bound, and could go no further, yet so as they might move to go about, but might not approach nearer; so as the boats stood all as in a theatre, beholding this light as a heavenly sign. It so fell out that there was in one of the boats one of the wise men, of the Society of Salomen's House; which House or College, my good brethren, is the very eye of this kingdom, who having awhile attentively and devoutly viewed and contemplated this pillar and cross, fell down upon his face, and then raised himself upon his knees, and lifting up his hands to heaven, made his prayers in this manner:

"Lord God of Heaven and Earth, thou hast vouchsafed of thy grace, to those of our order, to know thy works of creation and true secrets of them; and to discern (as far as appertaineth to the generations of men) between divine miracles, works of nature, works of art, and impostures and illusions of all sorts. I do here acknowledge and testify before this people that the thing we now see before our eyes is thy finger and a true miracle. And forasmuch as we learn in our books that thou never workest miracles, but to a divine and excellent end (for the laws of nature are thine own laws, and thou exceedest them not but upon good cause), we most humbly beseech thee to prosper this great sign, and to give us the interpretation and use of it in mercy, which thou dost in some part secretly promise by sending it unto us."

"When he had made his prayer, he presently found the boat he was in moveable and unbound, whereas all the rest remained still fast; and taking that for an assurance of leave to approach, he caused the boat to be softly and with silence rowed towards the pillar; but ere he came near it the pillar and cross of light brake up, and cast itself abroad, as it were in

a firmament of many stars; which also vanished soon after, and there was nothing left to be seen but a small ark, or chest of cedar, dry, and not wet at all with water, though it swam: and in the fore end of it, which was towards him, grew a small green branch of palm; and when the wise man had taken it with all reverence into his boat, it opened of itself, and there was found in it a book and a letter, both written in fine parchment, and wrapped in sindons of linen. The book contained all the Canonical Books of the Old and New Testament, according as you have them (for we know well what the churches with you receive); and the Apocalypse itself, and some other Books of the New Testament, which were not at that time written, were nevertheless in the book. And for the letter, it was in these words:

“I, Bartholomew, a servant of the Highest, and Apostle of Jesus Christ, was warned by an angel that appeared to me in a vision of Glory, that I should commit this ark to the floods of the sea; therefore I do testify and declare unto that people, where God shall ordain this ark to come to land, that in the same day is come unto them salvation and peace, and good will from the Father, and from the Lord Jesus.”

“There was also in both these writings, as well the book as the letter, wrought a great miracle, conform to that of the Apostles in the original Gift of Tongues. For there being at that time in this land Hebrews, Persians, and Indians, besides the natives, every one read upon the book and letter, as if they had been written in his own language. And thus was this land saved from infidelity (as the remain of the old world was from water) by an ark, through the apostolical and miraculous evangelism of St. Bartholomew.” And here he paused, and a messenger came, and called him forth from us. So this was all that passed in that conference.

The next day the same Governor came again to us, immediately after dinner, and excused himself, saying, that the day before he was called from us somewhat abruptly, but now he would make us amends, and spend time with us, if we held his company and conference agreeable. We answered, that we held it so agreeable and pleasing to us, as we forgot both dangers past, and fears to come, for the time we heard him speak; and that we thought an hour spent with him was worth years of our former life. He bowed himself a little to us, and after we were set again he said, “Well, the questions are on your part.” One of our number said, after a little pause,

that there was a matter we were no less desirous to know than fearful to ask, lest we might presume too far. But encouraged by his rare humanity towards us (that could scare think ourselves strangers, being his vowed and professed servants), we would take the hardiness to propound it, humbly beseeching him, if he thought it not fit to be answered, that he would pardon it though he rejected it. We said, we well observed those his words, which he formerly spake, that this happy island where we now stood was known to few, and yet knew most of the nations of the world; which we found to be true, considering they had the languages of Europe, and knew much of our state and business; and yet we in Europe (notwithstanding all the remote discoveries and navigations of this last age) never heard any of the least inkling or glimpse of this island. This we found wonderful strange; for that all nations have interknowledge one of another, either by voyage into foreign parts, or by strangers that come to them; and though the traveller into a foreign country doth commonly know more by the eye than he that stayed at home can by relation of the traveller, yet both ways suffice to make a mutual knowledge, in some degree, on both parts. But for this island, we never heard tell of any ship of theirs that had been seen to arrive upon any shore of Europe; no, nor of either the East or West Indies, nor yet of any ship of any other part of the world, that had made return for them. And yet the marvel rested not in this; for the situation of it (as his Lordship said) in the secret conclave of such a vast sea might cause it; but then, that they should have knowledge of the languages, books, affairs, of those that lie such a distance from them, it was a thing we could not tell what to make of, for that it seemed to us a condition and propriety of divine powers and beings, to be hidden and unseen to others, and yet to have others open, and as in a light to them. At this speech the Governor gave a gracious smile, and said, that we did well to ask pardon for this question we now asked; for that it imported, as if we thought this land a land of magicians, that sent forth spirits of the air into all parts to bring them news and intelligence of other countries. It was answered by us all, in all possible humbleness, but yet with a countenance taking knowledge, that we knew that he spake it but merrily; that we were apt enough to think there was somewhat supernatural in this island, but yet rather as angelical than magical. But to let his Lordship know truly what it was that made us tender and doubtful to ask this ques-

tion, it was not any such conceit, but because we remembered he had given a touch in his former speech, that this land had laws of secrecy touching strangers. To this he said, "You remember it aright; and therefore in that I shall say to you I must reserve some particulars, which it is not lawful for me to reveal; but there will be enough left to give you satisfaction.

"You shall understand (that which perhaps you will scarce think credible) that about three thousand years ago, or somewhat more, the navigation of the world (specially for remote voyages) was greater than at this day. Do not think with yourselves that I know not how much it is increased with you within these threescore years; I know it well; and yet I say greater then than now. Whether it was that the example of the ark, that saved the remnant of men from the universal deluge, gave men confidence to adventure upon the waters, or what it was, but such is the truth. The Phœnicians, and specially the Tyrians, had great fleets; so had the Carthaginians their colony, which is yet further west. Toward the east the shipping of Egypt and of Palestina was likewise great. China also, and the great Atlantis (that you call America), which have now but junks and canoes, abounded then in tall ships. This island (as appeareth by faithful registers of those times) had then fifteen hundred strong ships of great content. Of all this there is with you sparing memory or none; but we have large knowledge thereof.

"At that time this land was known and frequented by the ships and vessels of all the nations before-named. And (as it cometh to pass) they had many times men of other countries that were no sailors, that came with them, as Persians, Chaldeans, Arabians, so as almost all nations of might and fame resorted hither; of whom we have some stirps and little tribes with us at this day. And for our own ships they went sundry voyages, as well to your straits, which you call the Pillars of Hercules, as to other parts in the Atlantic and Mediterranean Seas; as to Paguin (which is the same with Cambalaine) and Quinzey, upon the Oriental Seas, as far as to the borders of the East Tartary.

"At the same time, and an age after or more, the inhabitants of the great Atlantis did flourish; for though the narration and description which is made by a great man with you, that the descendants of Neptune planted there, and of the magnificent temple, palace, city, and hill, and the manifold streams of goodly navigable rivers, which (as so many chains) environed

the same site and temple; and the several degrees of ascent, whereby men did climb up to the same, as if it had been a *scala cœli*, be all poetical and fabulous; yet so much is true, that the said country of Atlantis, as well that of Peru then called Coya, as that of Mexico, then named Tyrambel, were mighty and proud kingdoms in arms, shipping, and riches; so mighty, as at one time (or at least within the space of ten years) they both made two great expeditions; they of Tyrambel through the Atlantic to the Mediterranean Sea; and they of Coya, through the South Sea upon this island: and for the former of these, which was into Europe, the same author amongst you (as it seemeth) had some relation from the Egyptian priest, whom he citeth. For assuredly such a thing there was; but whether it were the antient Athenians that had the glory of the repulse and resistance of those forces, I can say nothing; but certain it is there never came back either ship or man from that voyage. Neither had the other voyage of those of Coya upon us, had better fortune, if they had not met with enemies of greater clemency; for the king of this island (by name Altabin), a wise man and a great warrior, knowing well both his own strength and that of his enemies, handled the matter so, as he cut off their land-forces from their ships, and entailed both their navy and their camp, with a greater power than theirs, both by sea and land, and compelled them to render themselves without striking stroke; and after they were at his mercy, contenting himself only with their oath, that they should no more bear arms against him, dismissed them all in safety. But the divine revenge overtook not long after those proud enterprises; for within less than the space of one hundred years the Great Atlantis was utterly lost and destroyed; not by a great earthquake, as your man saith (for that whole tract is little subject to earthquakes), but by a particular deluge or inundation, those countries having, at this day, far greater rivers and far higher mountains to pour down waters than any part of the Old World. But it is true that the same inundation was not deep, not past forty foot in most places from the ground; so that although it destroyed man and beasts generally, yet some few wild inhabitants of the wood escaped. Birds also were saved by flying to the high trees and woods; for as for men, although they had buildings in many places higher than the depth of the water; yet that inundation, though it were shallow, had a long continuance, whereby they of the vale that were not drowned perished for

want of food and other things necessary ; so as marvel you not at the thin population of America, nor at the rudeness and ignorance of the people, for you must account your inhabitants of America as a young people, younger a thousand years, at the least, than the rest of the world, for that there was so much time between the universal flood and their particular inundation. For the poor remnant of human seed which remained in their mountains, peopled the country again slowly, by little and little, and being simple and a savage people (not like Noah and his sons, which was the chief family of the earth), they were not able to leave letters, arts, and civility to their posterity ; and having likewise in their mountainous habitations been used (in respect of the extreme cold of these regions) to clothe themselves with the skins of tigers, bears, and great hairy goats that they have in those parts ; when after they came down into the valley and found the intolerable heats which are there, and knew no means of lighter apparel, they were forced to begin the custom of going naked, which continueth at this day ; only they take great pride and delight in the feathers of birds ; and this also they took from those their ancestors of the mountains, who were invited unto it by the infinite flight of birds that came up to the high grounds while the waters stood below. So you see, by this main accident of time, we lost our traffic with the Americans, with whom, of all others, in regard they lay nearest to us, we had most commerce. As for the other parts of the world, it is most manifest that, in the ages following (whether it were in respect of wars or by a natural revolution of time), navigation did everywhere greatly decay ; and specially, far voyages (the rather by the use of galleys and such vessels as could hardly brook the ocean) were altogether left and omitted. So then that part of intercourse which could be from other nations, to sail to us, you see how it hath long since ceased, except it were by some rare accident as this of yours. But now of the cessation of that other part of intercourse, which might be by our sailing to other nations, I must yield you some other cause ; for I cannot say (if I should say truly) but our shipping, for number, strength, mariners, pilots, and all things that appertain to navigation, is as great as ever ; and therefore why we should sit at home I shall now give you an account by itself, and it will draw nearer to give you satisfaction to your principal question.

“ There reigned in this island, about 1900 years ago, a king, whose memory of all others we most adore ; not superstitiously,

but as a divine instrument, though a mortal man; his name was Salomona; and we esteem him as the law-giver of our nation. This king had a large heart, inscrutable for good, and was wholly bent to make his kingdom and people happy. He therefore, taking into consideration how sufficient and substantive this land was to maintain itself without any aid at all of the foreigner, being 5600 miles in circuit, and of rare fertility of soil, in the greatest part thereof; and finding also the shipping of this country might be plentifully set on work, both by fishing and by transportations from port to port, and likewise by sailing unto some small islands that are not far from us, and are under the crown and laws of this state; and recalling into his memory the happy and flourishing estate wherein this land then was, so as it might be a thousand ways altered to the worse, but scarce any one way to the better, thought nothing wanted to his noble and heroical intentions, but only (as far as human foresight might reach) to give perpetuity to that, which was in his time so happily established; therefore amongst his other fundamental laws of this kingdom, he did ordain the interdicts and prohibitions which we have touching entrance of strangers, which at that time (though it was after the calamity of America) was frequent, doubting novelties and commixture of manners. It is true the like law, against the admission of strangers without licence, is an ancient law in the kingdom of China, and yet continued in use; but there it is a poor thing, and hath made them a curious, ignorant, fearful, foolish nation. But our law-giver made his law of another temper; for first, he hath preserved all points of humanity in taking order and making provision for the relief of strangers distressed, whereof you have tasted." At which speech (as reason was) we all rose up and bowed ourselves. He went on. "That king also still desiring to join humanity and policy together, and thinking it against humanity to detain strangers here against their wills, and against policy, that they should return and discover their knowledge of this estate, he took this course. He did ordain, that of the strangers that should be permitted to land, as many (at all times) might depart as would; but as many as would stay should have very good conditions and means to live from the state; wherein he saw so far, that now in so many ages since the prohibition, we have memory not of one ship that ever returned, and but of thirteen persons only, at several times, that chose to return in our bottoms. What those few that returned may have reported

abroad I know not; but you must think, whatsoever they have said, could be taken where they came but for a dream. Now for our travelling from hence into parts abroad, our law-giver thought fit altogether to restrain it. So is it not in China; for the Chinese sail where they will or can; which sheweth that their law of keeping out strangers is a law of pusillanimity and fear. But this restraint of ours hath one only exception; which is admirable, preserving the good which cometh by communicating with strangers, and avoiding the hurt; and I will now open it to you: and here I shall seem a little to digress, but you will by and by find it pertinent. Ye shall understand, my dear friends, that amongst the excellent acts of that king, one above all hath the pre-eminence. It was the erection and institution of an order, or society, which we call Salomon's House; the noblest foundation, as we think, that ever was upon the earth, and the lanthorn of this kingdom; it is dedicated to the study of the works and creatures of God. Some think it beareth the founder's name a little corrupted, as if it should be Solamon's House; but the records write it as it is spoken. So as I take it to be denominate of the King of the Hebrews, which is famous with you and no stranger to us, for we have some parts of his works which with you are lost; namely, that natural history which he wrote of all plants, from the cedar of Libanus to the moss that groweth out of the wall; and of all things that have life and motion. This maketh me think that our king, finding himself to symbolize in many things with that King of the Hebrews (which lived many years before him), honoured him with the title of this foundation: and I am the rather induced to be of this opinion, for that I find in antient records this order or society is sometimes called Salomon's House; and sometimes the College of the Six Days' Works, whereby I am satisfied that our excellent king had learned from the Hebrews that God had created the world and all that therein is, within six days; and therefore he instituted that House for the finding out of the true nature of all things (whereby God mought have the more glory in the workmanship of them, and men the more fruit in their use of them) did give it also that second name: but now to come to our present purpose. When the king had forbidden to all his people navigation in any part that was not under his crown, he made nevertheless this ordinance; that every twelve years there should be set forth, out of this kingdom, two ships appointed to several voyages; that in either of these ships there should be

a mission of three of the Fellows or Brethren of Salomon's House, whose errand was only to give us knowledge of the affairs and state of those countries to which they were designed; and especially of the sciences, arts, manufactures, and inventions of all the world; and withal to bring unto us books, instruments, and patterns in every kind. That the ships, after they had landed the Brethren, should return; and that the Brethren should stay abroad till the new mission. The ships are not otherwise fraught than with store of victuals and good quantity of treasure to remain with the Brethren, for the buying of such things, and rewarding of such persons, as they should think fit. Now for me to tell you how the vulgar sort of mariners are contained from being discovered at land; and how they that must be put on shore for any time colour themselves under the names of other nations; and to what places these voyages have been designed; and what places of rendezvous are appointed for the new missions; and the like circumstances of the practice, I may not do it, neither is it much to your desire; but thus you see we maintain a trade, not for gold, silver, or jewels, nor for silks, nor for spices, nor any other commodity of matter; but only for God's first creature, which was light; to have light, I say, of the growth of all parts of the world." And when he had said this he was silent, and so were we all; for indeed we were all astonished to hear so strange things so probably told. And he perceiving that we were willing to say somewhat, but had it not ready, in great courtesy took us off, and descended to ask us questions of our voyage and fortunes, and in the end concluded that we mought do well to think with ourselves what time of stay we would demand of the state, and bade us not to scant ourselves, for he would procure such time as we desired. Whereupon we all rose up and presented ourselves to kiss the skirt of his tippet, but he would not suffer us, and so took his leave; but when it came once amongst our people that the state used to offer conditions to strangers that would stay, we had work enough to get any of our men to look to our ship, and to keep them from going presently to the Governor to crave conditions; but with much ado we refrained them till we mought agree what course to take.

We took ourselves now for freemen, seeing there was no danger of our utter perdition, and lived most joyfully, going abroad and seeing what was to be seen, in the city and places adjacent, within our tedder; and obtaining acquaintance with

many of the city, not of the meanest quality, at whose hands we found such humanity, and such a freedom and desire to take strangers, as it were, into their bosom, as was enough to make us forget all that was dear to us in our own countries; and continually we met with many things right worthy of observation and relation; as indeed, if there be a mirror in the world worthy to hold men's eyes, it is that country. One day there were two of our company bidden to a feast of the family, as they call it. A most natural, pious, and reverend custom it is, showing that nation to be compounded of all goodness. This is the manner of it. It is granted to any man that shall live to see thirty persons descended of his body alive together, and all above three years' old, to make this feast, which is done at the cost of the State. The Father of the family, whom they call the Tirsan, two days before the feast, taketh to him three of such friends as he liketh to choose; and is assisted also by the Governor of the city or place where the feast is celebrated; and all the persons of the family, of both sexes, are summoned to attend him. These two days the Tirsan sitteth in consultation concerning the good estate of the family. There, if there be any discord or suits between any of the family, they are compounded and appeased. There, if any of the family be distressed or decayed, order is taken for their relief and competent means to live. There, if any be subject to vice, or take ill courses, they are reproved and censured; so likewise direction is given touching marriages and the courses of life which any of them should take, with divers other the like orders and advices. The Governor assisteth, to the end to put in execution, by his public authority, the decrees and orders of the Tirsan, if they should be disobeyed, though that seldom needeth; such reverence and obedience they give to the order of nature. The Tirsan doth also then ever choose one man from amongst his sons to live in house with him, who is called, ever after, the Son of the Vine; the reason will hereafter appear. On the feast-day the Father, or Tirsan, cometh forth after divine service into a large room where the feast is celebrated; which room hath an half-pace at the upper end. Against the wall, in the middle of the half-pace, is a chair placed for him, with a table and carpet before it. Over the chair is a state, made round or oval, and it is of ivy; an ivy somewhat whiter than ours, like the leaf of a silver aspe, but more shining, for it is green all winter. And the state is curiously wrought with silver and silk of divers colours, broiding or binding in the

ivy; and is ever of the work of some of the daughters of the family; and veiled over at the top with a fine net of silk and silver; but the substance of it is true ivy, whereof, after it is taken down, the friends of the family are desirous to have some leaf or sprig to keep. The Tirsan cometh forth with all his generation or lineage, the males before him and the females following him; and if there be a mother, from whose body the whole lineage is descended, there is a traverse placed in a loft above on the right hand of the chair, with a privy door, and a carved window of glass, leaded with gold and blue, where she sitteth but is not seen. When the Tirsan is come forth he sitteth down in the chair, and all the lineage place themselves against the wall, both at his back, and upon the return of the half-pace, in order of their years, without difference of sex, and stand upon their feet. When he is set, the room being always full of company, but well kept and without disorder, after some pause there cometh in from the lower end of the room a Taratan (which is much as an herald), and on either side of him two young lads, whereof one carrieth a scroll of their shining yellow parchment, and the other a cluster of grapes of gold, with a long foot or stalk. The herald and children are clothed with mantles of sea-water green satin; but the herald's mantle is streamed with gold, and hath a train. Then the herald with three courtesies, or rather inclinations, cometh up as far as the half-pace, and there first taketh into his hand the scroll. This scroll is the king's charter, containing gift of revenue, and many privileges, exemptions, and points of honour granted to the father of the family; and it is ever styled and directed, "To such an one, our well-beloved Friend and Creditor;" which is a title proper only to this case; for they say the king is debtor to no man, but for propagation of his subjects; the seal set to the king's charter is the king's image, embossed or moulded in gold; and though such charters be expedited of course, and as of right, yet they are varied by discretion according to the number and dignity of the family. This charter the herald readeth aloud; and while it is read, the father or Tirsan standeth up, supported by two of his sons, such as he chooseth. Then the herald mounteth the half-pace, and delivereth the charter into his hand; and with that there is an acclamation, by all that are present, in their language, which is thus much; "Happy are the people of Bensalem." Then the herald taketh into his hand from the other child the cluster of grapes, which is of gold, both the stalk and the grapes; but

the grapes are daintily enamelled; and if the males of the family be the greater number, the grapes are enamelled purple, with a little sun set on the top; if the females, then they are enamelled into a greenish yellow with a crescent on the top. The grapes are in number as many as there are descendants of the family. This golden cluster the herald delivereth also to the Tirsan, who presently delivereth it over to that son that he had formerly chosen, to be in house with him, who beareth it before his father as an ensign of honour when he goeth in public ever after, and is thereupon called the Son of the Vine. After this ceremony ended, the father or Tirsan retireth; and after some time cometh forth again to dinner, where he sitteth alone under the state as before; and none of his descendants sit with him, of what degree or dignity soever, except he hap to be of Salomon's House. He is served only by his own children, such as are male, who perform unto him all service of the table upon the knee; and the women only stand about him, leaning against the wall. The room below his half-pace hath tables on the sides for the guests that are bidden, who are served with great and comely order; and toward the end of dinner (which in the greatest feasts with them lasteth never above an hour and a half) there is an hymn sung, varied according to the invention of him that composed it (for they have excellent poesy). But the subject of it is always the praises of Adam, and Noah, and Abraham; whereof the former two peopled the world, and the last was the Father of the Faithful; concluding ever with a thanksgiving for the nativity of our Saviour, in whose birth the births of all are only blessed. Dinner being done, the Tirsan retireth again; and having withdrawn himself alone into a place, where he maketh some private prayers, he cometh forth the third time to give the blessing, with all his descendants, who stand about him as at the first. Then he calleth them forth by one and by one, by name, as he pleaseth, though seldom the order of age be inverted. The person that is called (the table being before removed) kneeleth down before the chair, and the father layeth his hand upon his head, or her head, and giveth the blessing in these words: "Son of Bensalem (or daughter of Bensalem), thy father saith it; the man by whom thou hast breath and life speaketh the word; the blessing of the everlasting Father, the Prince of Peace, and the holy dove be upon thee, and make the days of thy pilgrimage good and many." This he saith to every of them; and that done, if there be any of his sons of eminent

merit and virtue (so they be not above two), he calleth for them again, and saith, laying his arm over their shoulders, they standing, "Sons, it is well you are born : give God the praise, and persevere to the end." And withal delivereth to either of them a jewel, made in the figure of an ear of wheat, which they ever after wear in the front of their turban or hat. This done they fall to music and dances and other recreations, after their manner, for the rest of the day. This is the full order of that feast.

By that time six or seven days were spent, I was fallen into straight acquaintance with a merchant of that city, whose name was Joabin. He was a Jew, and circumcised ; for they have some few stirps of Jews yet remaining among them, whom they leave to their own religion ; which they may the better do because they are of a far differing disposition from the Jews in other parts : for whereas they hate the name of Christ, and have a secret inbred rancour against the people among whom they live ; these, contrarywise, give unto our Saviour many high attributes, and love the nation of Bensalem extremely. Surely this man, of whom I speak, would ever acknowledge that Christ was born of a virgin, and that he was more than a man ; and he would tell how God made him ruler of the seraphims which guard his throne ; and they call him also the Milken Way, and the Eliab of the Messiah, and many other high names ; which though they be inferior to his Divine Majesty, yet they are far from the language of other Jews. And for the country of Bensalem, this man would make no end of commending it, being desirous by tradition among the Jews there, to have it believed that the people thereof were of the generations of Abraham, by another son whom they call Nachoran ; and that Moses, by a secret Cabala, ordained the laws of Bensalem which they now use ; and that when the Messiah should come, and sit in his throne at Hierusalem, the king of Bensalem should sit at his feet, whereas other kings should keep a great distance. But yet setting aside these Jewish dreams, the man was a wise man and learned, and of great policy, and excellently seen in the laws and customs of that nation.

He afterwards questions the Jew on their laws and customs touching marriage ; and, among other things, is told that they allow no polygamy, and that "marriage without consent of parents they do not make void, but

they mulct it in the inheritors; for the children of such marriages are not admitted to inherit above a third part of their parents' inheritance." The narrative then proceeds:—

And as we were thus in conference there came one that seemed to be a messenger, in a rich huke, that spake with the Jew, whereupon he turned to me, and said, "You will pardon me, for I am commanded away in haste." The next morning he came to me again joyful, as it seemed, and said, "There is word come to the governor of the city that one of the fathers of Salomon's House will be here this day seven-night; we have seen none of them this dozen years; his coming is in state, but the cause of his coming is secret. I will provide you and your fellows of a good standing to see his entry." I thanked him, and told him I was most glad of the news. The day being come, he made his entry. He was a man of middle stature and age, comely of person, and had an aspect as if he pitied men. He was clothed in a robe of fine black cloth, with wide sleeves, and a cape; his under garment was of excellent white linen down to the foot, girt with a girdle of the same, and a sindon or tippet of the same about his neck; he had gloves that were curious and set with stone, and shoes of peach-coloured velvet; his neck was bare to the shoulders; his hat was like a helmet or Spanish montera, and his locks curled below it decently, they were of colour brown; his beard was cut round, and of the same colour with his hair, somewhat lighter. He was carried in a rich chariot, without wheels, litter-wise, with two horses at either end richly trapped in blue velvet embroidered, and two footmen on each side in the like attire. The chariot was all of cedar, gilt and adorned with crystal; save that the fore end had pannels of sapphires, set in borders of gold, and the hinder end the like of emeralds of the Peru colour; there was also a sun of gold, radiant upon the top in the midst, and on the top before a small cherub of gold with wings displayed; the chariot was covered with cloth of gold tissue upon blue: he had before him fifty attendants, young men, all in white satin loose coats up to the mid-leg, and stockings of white silk, and shoes of blue velvet, and hats of blue velvet, with fine plumes of divers colours set round like hatbands. Next before the chariot went two men bareheaded, in linen garments down to the foot, girt, and shoes of blue velvet, who carried the one a crozier, the other a pastoral staff

like a sheepphook, neither of them of metal, but the crosier of balm-wood, the pastoral staff of cedar. Horsemen he had none, neither before nor behind his chariot, as it seemeth, to avoid all tumult and trouble; behind his chariot went all the officers and principals of the companies of the city; he sat alone upon cushions of a kind of excellent plush, blue; and under his foot curious carpets of silk of divers colours, like the Persian, but far finer; he held up his bare hand as he went, as blessing the people, but in silence. The street was wonderfully well kept, so that there was never any army had their men stand in better battle-array than the people stood; the windows likewise were not crowded, but every one stood in them as if they had been placed. When the show was past, the Jew said to me, "I shall not be able to attend you as I would, in regard of some charge the city hath laid upon me for the entertaining of this great person." Three days after, the Jew came to me again, and said, "Ye are happy men: for the father of Salomon's House taketh knowledge of your being here, and commanded me to tell you that he will admit all your company to his presence, and have private conference with one of you that ye shall choose; and for this hath appointed the next day after to-morrow, and because he meaneth to give you his blessing he hath appointed it in the forenoon." We came at our day and hour, and I was chosen by my fellows for the private access. We found him in a fair chamber richly hanged, and carpeted under foot, without any degrees to the state; he was set upon a low throne richly adorned, and a rich cloth of state over his head, of blue satin embroidered. He was alone, save that he had two pages of honour, on either hand one, finely attired in white. His under-garments were the like that we saw him wear in the chariot, but instead of his gown he had on him a mantle with a cape, of the same fine black, fastened about him. When we came in, as we were taught, we bowed low at our first entrance; and when we were come near his chair he stood up, holding forth his hand ungloved and in posture of blessing; and we every one of us stooped down and kissed the hem of his tippet; that done, the rest departed, and I remained.

The Father, then, having warned the pages forth of the room, and caused his visitor to sit down beside him, gives him the following account of Solomon's House:—

The end of our foundation is the knowledge of causes and

secret motions of things, and the enlarging of the bounds of human empire to the effecting of all things possible.

The preparations and instruments are these : we have large and deep caves of several depths ; the deepest are sunk six hundred fathom, and some of them are digged and made under great hills and mountains ; so, that if you reckon together the depth of the hill and the depth of the cave, they are some of them above three miles deep ; for we find that the depth of an hill, and the depth of a cave from the flat, is the same thing, both remote alike from the sun and heaven's beams, and from the open air. These caves we call the lower region, and we use them for all coagulations, indurations, refrigerations, and conservations of bodies ; we use them likewise for the imitation of natural mines, and the producing also of new artificial metals by compositions and materials, which we use and lay there for many years. We use them also sometimes (which may seem strange) for curing of some diseases, and for prolongation of life in some hermits that choose to live there, well accommodated of all things necessary, and indeed live very long, by whom also we learn many things.

We have burials in several earths, where we put divers cements, as the Chinese do their porcelain ; but we have them in greater variety, and some of them more fine. We also have great variety of composts and soils for the making of the earth fruitful.

We have high towers ; the highest about half-a-mile in height, and some of them likewise set upon high mountains ; so that the vantage of the hill with the tower is, in the highest of them, three miles at least ; and these places we call the upper region, accounting the air between the high places and the low as a middle region. We use these towers according to their several heights and situations, for insolation, refrigeration, conservation, and for the view of divers meteors, as winds, rain, snow, hail, and some of the fiery meteors also ; and upon them, in some places, are dwellings of hermits, whom we visit sometimes and instruct what to observe.

We have great lakes both salt and fresh, whereof we have use for the fish and fowl ; we use them also for burials of some natural bodies : for we find a difference in things buried in earth, or in air below the earth, and things buried in water. We have also pools, of which some do strain fresh water out of salt ; and others, by art, do turn fresh water into salt. We have also some rocks in the midst of the sea, and some bays

upon the shore, for some works wherein is required the air and vapour of the sea; we have likewise violent streams and cataracts, which serve us for many motions: and likewise engines for multiplying and enforcing of winds, to set also on going divers motions.

We have also a number of artificial wells and fountains made in imitation of the natural sources and baths: as tinted upon vitriol, sulphur, steel, brass, lead, nitre, and other minerals. And again, we have little wells for infusions of many things, where the waters take the virtue quicker and better than in vessels or basins; and amongst them we have a water which we call Water of Paradise: being, by that we do it, made very sovereign for health and prolongation of life.

We have also great and spacious houses where we imitate and demonstrate meteors: as snow, hail, rain, some artificial rains of bodies, and not of water, thunders, lightnings; also generations of bodies in air, as frogs, flies, and divers others.

We have also certain chambers, which we call Chambers of Health, where we qualify the air as we think good and proper for the cure of divers diseases and preservation of health.

We have also fair and large baths, of several mixtures, for the cure of diseases and the restoring of man's body from arefaction; and other for the confirming of it in strength of sinews, vital parts, and the very juice and substance of the body.

We have also large and various orchards and gardens, wherein we do not so much respect beauty as variety of ground and soil, proper for divers trees and herbs; and some very spacious, where trees and berries are set, whereof we make divers kinds of drinks, besides the vineyards. In these we practise likewise all conclusions of grafting and inoculating, as well of wild trees as fruit-trees, which produceth many effects; and we make by art in the same orchards and gardens trees and flowers to come earlier or later than their seasons, and to come up and bear more speedily than by their natural course they do; we make them also, by art, greater much than their nature, and their fruit greater and sweeter, and of differing taste, smell, colour, and figure from their nature; and many of them we so order that they become of medicinal use.

We have also means to make divers plants rise by mixtures of earths without seeds; and likewise to make divers new plants, differing from the vulgar; and to make one tree or plant turn into another.

" We have also parks and enclosures of all sorts of beasts and birds, which we use not only for view or rareness, but likewise for dissections and trials : that thereby we may take light what may be wrought upon the body of man, wherein we find many strange effects, as continuing life in them though divers parts which you account vital, be perished and taken forth, resuscitating of some that seem dead in appearance, and the like. We try also all poisons and other medicines upon them, as well of chirurgery as physic. By art, likewise, we make them greater or taller than their kind is, and, contrarywise, dwarf them and stay their growth ; we make them more fruitful and bearing than their kind is, and, contrarywise, barren, and not generative ; also we make them differ in colour, shape, activity, many ways.

I will not hold you long with recounting of our brewhouses, bakehouses, and kitchens, where are made divers drinks, breads, and meats, rare, and of special effects. Wines we have of grapes, and drinks of other juice of fruits, of grains, and of roots ; and of mixtures with honey, sugar, manna, and fruits dried and decocted ; also of the tears or woundings of trees, and of the pulp of canes ; and these drinks are of several ages, some to the age or last of forty years. We have drinks also brewed with several herbs, and roots, and spices, yea, with several fleshes and white meats, whereof some of the drinks are such as they are in effect meat and drink both, so that divers, especially in age, do desire to live with them with little or no meat or bread : and, above all, we strive to have drinks of extreme thin parts, to insinuate into the body, and yet without all biting, sharpness, or fretting, inasmuch as some of them put upon the back of your hand, will, with a little stay, pass through to the palm, and yet taste mild to the mouth. We have also waters which we ripen in that fashion as they become nourishing, so that they are indeed excellent drink, and many will use no other. Breads we have of several grains, roots, and kernels, yea, and some of flesh and fish, dried, with divers kinds of leavings and seasonings, so that some do extremely move appetites ; some do nourish so as divers do live of them without any other meat who live very long ; so for meats, we have some of them so beaten, and made tender, and mortified, yet without all corrupting, as a weak heat of the stomach will turn them into good chilus, as well as a strong heat would meat otherwise prepared. We have some meats also, and breads, and drinks, which, taken by men, enable them to

fast long after, and some other that used make the very flesh of men's bodies sensibly more hard and tough, and their strength far greater than otherwise it would be. . . .

We have also divers mechanical arts, which you have not, and stuffs made by them, as papers, linen, silks, tissues, dainty works of feathers of wonderful lustre, excellent dyes, and many others, and shops likewise, as well for such as are not brought into vulgar use amongst us, as for those that are. . . .

We have also perspective-houses, where we make demonstrations of all lights and radiations, and of all colours; and out of things uncoloured and transparent we can represent unto you all several colours not in rainbows (as it is in gems and prisms), but of themselves single. We represent also all multiplications of light, which we carry to great distance and make so sharp as to discern small points and lines; also all colourations of light, all delusions and deceits of the sight, in figures, magnitudes, motions, colours, all demonstrations of shadows. We find also divers means yet unknown to you of producing of light originally from divers bodies. We procure means of seeing objects afar off, as in the heaven and remote places, and represent things near as afar off, and things afar off as near, making feigned distances. We have also helps for the sight far above spectacles and glasses in use; we have also glasses and means to see small and minute bodies perfectly and distinctly, as the shapes and colours of small flies and worms, grains, and flaws in gems which cannot otherwise be seen. . . . We make artificial rainbows, halos, and circles about light; we represent also all manner of reflections, refractions, and multiplication of visual beams of objects.

We have also precious stones of all kinds, many of them of great beauty, and to you unknown; crystals likewise, and glasses of divers kinds, and amongst them some of metals vitrified, and other materials beside those of which you make glass; also a number of fossils and imperfect minerals which you have not; likewise loadstones of prodigious virtue, and other rare stones, both natural and artificial.

We have also sound-houses, where we practise and demonstrate all sounds and their generation. We have harmonies which you have not, of quarter sounds and lesser slides of sounds. Diverse instruments of music likewise to you unknown, some sweeter than any you have, with bells and rings that are dainty and sweet. We represent small sounds as great and deep; likewise great sounds extenuate and sharp;

we make diverse tremblings and warblings of sounds, which in their original are entire. We represent and imitate all articulate sounds and letters, and the voices and notes of beasts and birds. We have certain helps, which, set to the ear, do further the hearing greatly. We have also diverse strange and artificial echoes, reflecting the voice many times, and, as it were, tossing it: and some that give back the voice louder than it came, some shriller, and some deeper, yea, some rendering the voice differing in the letters or articulate sound from that they receive. We have all means to convey sounds in trunks and pipes, in strange lines and distances.

We have also perfume-houses, wherewith we join also practices of taste. We multiply smells, which may seem strange; we imitate smells, making all smells to breathe out of other mixtures than those that give them; we make diverse imitations of taste likewise, so that they will deceive any man's taste; and in this house we contain also a confiture-house, where we make all sweetmeats, dry and moist, and divers pleasant wines, milks, broths, and salads far in greater variety than you have.

We have also engine-houses, where are prepared engines and instruments for all sorts of motions. There we imitate and practise to make swifter motions than any you have, either out of your muskets or any engine that you have, and to make them and multiply them more easily, and with small force, by wheels and other means, and to make them stronger and more violent than yours are, exceeding your greatest canuons and basilisks. We represent also ordnance and instruments of war, and engines of all kinds, and likewise new mixtures and compositions of gunpowder, wildfires, burning in water, and unquenchable; also fireworks of all variety, both for pleasure and use. We imitate also flights of birds; we have some degrees of flying in the air. We have ships and boats for going under water, and brooking of seas; also swimming-girdles and supporters. We have divers curious clocks, and other like motions of return, and some perpetual motions. We imitate also motions of living creatures, by images of men, beasts, birds, fishes, and serpents. We have also a great number of other various motions, strange for equality, fineness, and subtlety.

We have also a mathematical-house, where are represented all instruments, as well of geometry as astronomy, exquisitely made.

We have also houses of deceits of the senses, where we represent all manner of feats of juggling, false apparitions, impostures, and illusions, and their fallacies; and surely you will easily believe that we that have so many things truly natural, which induce admiration, could in a world of particulars deceive the senses, if we would disguise those things and labour to make them more miraculous. But we do hate all impostures and lies, insomuch as we have severely forbidden it to all our fellows, under pain of ignominy and fines, that they do not show any natural work or thing adorned or swelling, but only pure as it is, and without all affectation of strangeness.

These are, my son, the riches of Salomon's house.

For the several employments and offices of our fellows we have twelve that sail into foreign countries under the names of other nations (for our own we conceal), who bring us the books, and abstracts, and patterns of experiments of all other parts. These we call merchants of light.

We have three that collect the experiments which are in all books. These we call depredators.

We have three that collect the experiments of all mechanical arts, and also of liberal sciences, and also of practices which are not brought into arts. These we call mystery-men.

We have three that try new experiments.

Such as themselves think good. These we call pioneers or miners.

We have three that draw the experiments of the former four into titles and tables, to give the better light for the drawing of observations and axioms out of them. These we call compilers.

We have three that bend themselves, looking into the experiments of their fellows, and cast about how to draw out of them things of use and practice for man's life and knowledge, as well for works as for plain demonstration of causes, means of natural divinations, and the easy and clear discovery of the virtues and parts of bodies. These we call dowry-men, or benefactors.

Then after diverse meetings and consults of our whole number, to consider of the former labours and collections, we have three that take care, out of them, to direct new experiments of a higher light, more penetrating into nature than the former. These we call lamps.

We have three others that do execute the experiment, so directed, and report them. These we call inoculators.

Lastly, we have three that raise the former discoveries by experiments into greater observations, axioms, and aphorisms. These we call interpreters of nature.

We have also, as you must think, novices and apprentices, that the succession of the former employed men do not fail, besides a great number of servants and attendants, men, and women. And this we do also: we have consultations, which of the inventions and experiences which we have discovered shall be published, and which not, and take all an oath of secrecy for the concealing of those which we think meet to keep secret, though some of those we do reveal sometimes to the state, and some not.

For our ordinances and rites we have two very long and fair galleries; in one of these we place patterns and samples of all manner of the more rare and excellent inventions: in the other we place the statues of all principal inventors. There we have the statue of your Columbus, that discovered the West Indies; also the inventor of ships; your monk that was the inventor of ordnance and of gunpowder; the inventor of music; the inventor of letters; the inventor of printing; the inventor of observations of astronomy; the inventor of works in metal; the inventor of glass; the inventor of silk of the worm; the inventor of wine; the inventor of corn and bread; the inventor of sugars; and all these by more certain tradition than you have. Then we have divers inventors of our own of excellent works, which, since you have not seen, it were too long to make descriptions of them, and, besides, in the right understanding of those descriptions you might easily err: for upon every invention of value we erect a statue to the inventor, and give him a liberal and honourable reward. These statues are, some of brass, some of marble and touchstone, some of cedar, and other special woods, gilt and adorned, some of iron, some of silver, some of gold.

We have certain hymns and services, which we say daily, of laud and thanks to God for his marvellous works, and forms of prayers, imploring his aid and blessing for the illumination of our labours, the end turning them into good and holy uses.

Lastly, we have circuits or visits of divers principal cities of the kingdom, where, as it cometh to pass, we do publish such new profitable inventions as we think good; and we do also declare natural divinations of diseases, plagues, swarms of

harmful creatures, scarcity, tempest, earthquakes, great inundations, comets, temperature of the year, and divers other things; and we give counsel thereupon what the people shall do for the prevention and remedy of them.

And when he had said this, he stood up; and I, as I had been taught, kneeled down, and he laid his right hand upon my head and said, "God bless thee, my son, and God bless this relation which I have made. I give thee leave to publish it, for the good of other nations; for we here are in God's bosom, a land unknown." And so he left me, having assigned a value of about two thousand ducats for a bounty to me and my fellows; for they give great largesses where they come, upon all occasions.

To this Third Part of the *Instauratio* are also to be referred certain other papers first published by Tenison in that division of the *Baconiana* (1679) entitled *Physiological Remains*. Of these a mere enumeration will be sufficient. The first, an imperfect tract in English entitled 'Inquisitions touching the Compounding of Metals,' is different from the portion relating to the same subject of the 'Articles respecting Metals' already noticed. The others are, 'Certain Experiments made by the Lord Bacon about Weight in Air and Water;'—'Certain Sudden Thoughts of the Lord Bacon's, set down by him under the title of *Experiments for Profit*;'—'Certain Experiments of the Lord Bacon's about the Commixture of Liquors only, not Solida, without heat or agitation, but only by simple composition and settling;'—'A Catalogue of Bodies attractive and not attractive, made by the Lord Bacon, together with experimental observations about Attraction;' partly in Latin, and given also in English by Tenison. Along with these may be placed a collection in English of facts respecting Heat and Cold, first published in Stephens's Second Collection, *Letters and Remains*, 4to. Lon. 1734, under the title of 'Sequela Chartarum; sive, Inquisitio Legitima de Calore et Frigore.' Then there are the *Medical Remains* published in the *Baconiana*;—consisting of a receipt styled by Bacon 'Grains of Youth;' various other ointments, preservatives, restorative drinks, &c.; a receipt for

'Methusalem Water, against all asperity and torrefaction of inward parts, all adusion of the blood, and generally against the dryness of age;'—'A Catalogue of Astrin-gents, &c. instrumental to Health;'—'A Catalogue by the Lord Bacon, for his own use, out of the Book for the Prolongation of Life; together with some new Advices in order to Health;'—and our other receipts. Bacon's most celebrated receipt, however, is one for the Gout, of which he says in the *Sylva* (*Exp.* 60):—"I have tried, myself, a remedy for the gout, which hath seldom failed, but driven it away in twenty-four hours' space:—it is first to apply a poultice, of which *vide* the Receipt, and then a bath, or fomentation, of which *vide* the Re-ceipt; and then a plaster, *vide* the Receipt. . . . The poultice is to be laid to for two or three hours; the fo-mentation for a quarter of an hour or somewhat better, being used hot, and seven or eight times repeated; the plaster to continue on still till the part be well con-firmed." The Receipt is given at the end of the *Sylva*, and is as follows:—

1. The Poultice.—R. Of manchet, about 3 ounces, the crum only, thin cut; let it be boiled in milk till it grow to a pulp. Add in the end a dram and a half of the powder of red roses; of saffron, 10 grains; of oil of roses, an ounce. Let it be spread upon a linen cloth and applied luke-warm, and con-tinued for three hours' space.

2. The Bath, or Fomentation.—R. Of sage-leaves half a handful; of the root of hemlock, sliced, 6 drams; of briony-roots, half an ounce; of the leaves of red roses, 2 pugills. Let them be boiled in a pottle of water wherein steel hath been quenched till the liquor come to a quart. After the straining put in half a handful of bay-salt. Let it be used with scarlet cloth, or scarlet wool, dipped in the liquor hot, and so renewed seven times, all in the space of a quarter of an hour, or little more.

3. The Plaster.—R. Emplastrum diacalcitheos, as much as is sufficient for the part you mean to cover. Let it be dis-solved with oil of roses in such a consistence as will stick, and spread upon a piece of holland and applied.

The volume containing the *Sylva* and the *New Atlan-*

tis closes in the old editions with an enumeration of what are designated 'Magnalia Naturæ, præcipue quoad usus humanos' (The great Things of Nature, more especially in so far as regards the needs of Man). These *Magnalia* include the Prolongation of Life, the Restitution of Youth in some degree, the Retardation of Age, the Curing of Diseases counted Incurable, the Mitigation of Pain, the Increasing of Strength and Activity and, of ability to suffer Pain or Torture, the Altering of Complexions, of Fatness and Leanness of Statures, and of Features, the Increasing and Exalting of the Intellectual Parts, the Version (or Conversion) of Bodies into other Bodies, the Making of new Species, Instruments of Destruction as of War and Poison, Exhilaration of the Spirits, Force of the Imagination either upon another body or upon the body itself, Acceleration of Time in Maturations and Classifications, the Acceleration of Putrefaction, Decoction, and Germination, the Raising of Tempests, New Foods, New Threads for Apparel and New Stuffs, Natural Divinations, Deceptions of the Senses, Greater Pleasures of the Senses, Artificial Minerals and Cements,

Of the FOURTH PART of the *Instauratio Magna*, all that appears to have been executed is a short Preface or Introduction printed by Gruter among the *Impetus Philosophici* with the titles of 'Scala Intellectus, sive Filum Labyrinthi' (The Ladder of the Understanding, or the Thread of the Labyrinth). The second of these two titles, it may be remembered, is the same that Gruter has also given to an Inquiry respecting Motion, noticed above, which he has printed in another part of his volume, and which has been assigned by the modern editors to the Third Part of the *Instauratio*. The *Scala Intellectus* is the title given by Bacon himself to the Fourth Part of his great work in the *Distributio*, or Plan, published along with the *Novum Organum*.* In that discourse he describes this Fourth Part as in fact nothing else than a particular and expanded application of the Second Part.† The Preface published by Gruter

* See the present work, Vol. II. p. 25. † Ibid. p. 31.

is translated by Archdeacon Wrangham in Mr. Montagu's edition of Bacon's Works; and it is also inserted in what Shaw has given as an Introduction to the Fourth Part of the *Instauration*, which he describes as having been "collected from certain scattered fragments in the *Scripta* published by Gruter." Here is Shaw's translation of the concluding portion of it:—

The entrance of the road we pursue is described in the second part of our *Instauration*, or *Novum Organum*; and followed in the third part, the *Phænomena of the Universe*, in our *Sylva Sylvarum*; where we endeavoured to penetrate and pass through the woods of nature, thick set and darkened with a great variety of experiments, as with leaves; and entangled and twined together, like shrubs and bushes, with the subtilty of observations. We are now, perhaps, proceeding to the more open parts of nature, which however are still more difficult; and having got through the woods, are come to the bottoms of the mountains; for though the way was never attempted before, we shall lead on from particular histories to universals, in one certain and continued path.

And here we cannot but observe, that those two famous ways of the ancients in active life, have a great correspondence with the ways of contemplation; the one whereof, being at the first plain and easy, leads on to cragged, dangerous, and impassable places; but the other, beginning steep and difficult, ends in a plain: for in the same manner, he who at the first inquiry into nature lays hold of certain immoveable principles in the sciences, and trusting to them shall hope to find out everything else, as it were, at leisure; if he proceeds in his inquiries, without being over satisfied or dissatisfied by the way, will find himself got into the first of these roads. But he that shall be able to withhold his judgment, ascend by degrees, and pass as it were over the tops of mountains, climbing first up one, then up another, and so to a third, with true patience and unwearied diligence; will in due time arrive at the heights and top-grounds of nature, where there is a sure footing, a serene station, and a beautiful prospect of things; with a gentle and easy descent leading down to all practical arts.

Our design therefore is this: that as in the second part of our work, we have laid down precepts for a just and legitimate inquiry into nature; so in this fourth part we would give examples of such an inquiry in a variety of subjects, in such

a manner as we judge to have the exactest correspondence with truth ; and therefore deliver as a manner chosen and approved.

We do not, however, after the common custom of men, propose our own forms and methods of inquiry, as if they were inviolable, the only ones and perfect in all their parts, so as to make it absolutely necessary to use them ; for we would by no means cramp or confine the industry and felicity of mankind. There is no doubt but men of genius and leisure, either of themselves or as being now freed from the difficulties which necessarily attend the first breaking up of the ice of experience, may carry our method to greater perfection ; and it is our earnest desire that the true art of conducting inquiries should improve.

From what is said here and in the *Distributio* Shaw appears to have inferred, that the examples of investigation and discovery according to his new system, which Bacon intended to give in the Fourth Part of the *Instauration*, were no other than those which he published under the titles of his Histories of the Winds, of Life and Death, &c. And these treatises are accordingly placed by Shaw in the Fourth Part. But this is to go directly in the face of Bacon's own title-pages, which expressly declare all these Histories to belong to the Third Part of the *Instauration*.

In the *Distributio* Bacon has himself entitled the FIFTH PART of the *Instauration* 'Prodromi sive Anticipationes Philosophicæ Secundæ ;'* and among the *Impetus Philosophici* published by Gruter is a short paper bearing that title, and further designated 'Prælatio' (The Preface). The following is the greater part of it, as translated by Shaw :—

Though in our own opinion we lay better things before mankind than either the ancient or those at present received, yet we are far from lessening these latter in the public esteem ; but desire that even these should be improved, enlarged, and prized as they deserve. For it is no part of our intention to lead all men totally, or any of them immediately, away from the things at present authorized and believed. But as an arrow in shooting whirls round its axis all the time of its progressive motion, and thus helps itself forwards, so whilst we

* See Vol. II. p. 25.

tend to our mark, we desire to roll round in the things now commonly known and received: and thus we candidly and ingenuously make use of the assistance of common reason and the vulgar demonstrations, though we disallow their sway or absolute authority; but with the same right as the rest of mankind, deliver such things as we have discovered and approved by the ordinary means; for such things may doubtless have a great share of truth and utility.

By this procedure, however, we mean not in the least to derogate from what we have all along said of the insufficiency of the unassisted natural reason, and the demonstrations of the ancients; but only lent out these things to the world for a time, to accommodate those who, through a want of abilities, or through multiplicity of other affairs, have just excuse for confining their contemplations within the old beaten paths and provinces of the sciences, or at least within the confines thereof; and again to serve such as, according to our indications and directions, shall enter into and pursue our true method of interpreting nature; thus setting up for them inns by the way, for their ease, support, and refreshment; whilst at the same time, we in some degree promote the felicity of mankind, and afford a large supply of matter to such minds as have a somewhat closer affinity and connection with nature. Though this we no way hope to do on account of any extraordinary talent, or any uncommon reliance we have upon ourselves.

On the other hand, if any person of a common capacity, but of a ripe judgment, would lay aside the idols of his own mind, resolve to begin his inquiries anew, and with attention, diligence, and freedom, converse among realities, or the facts and experiments of natural history, he might thus doubtless penetrate much further into nature, by the sole, proper, and genuine powers of the mind, and by his own mere natural thoughts and apprehensions, than by reading all the authors that have wrote, or by indulging himself in abstract contemplations, or by pursuing and repeating the most rigorous and assiduous disputations; and this though he were not to use any of our machinery or contrivances, to assist his understanding; nor was acquainted with the true form of induction and interpretation. We therefore hope that something of this kind may happen to ourselves, especially as we have already had some experience in the business of interpreting nature; which may probably correct and change the perverse habit and bent of the mind.

This, however, must not be so understood, as if we required

that assent to our own doctrines and opinions which we refuse to the ancients ; for we openly profess and declare that we will by no means abide by the things we shall here declare, whatsoever they may prove ; and this purely to reserve everything as it were entire, for our secondary, inductive, and more perfect philosophy.

We think proper, in the work itself, to deliver our thoughts loose and free, without binding them up into method, because this form best suits the young sciences that are but just sprouting anew from their roots ; and has no tendency to build up an art by the cementing of things together, but leaves, as it ought for the present, every subject unlimited and open to further inquiry.

There still remain several pieces in Latin among those published by Gruter, and also one or two fragments in English, which may be considered as belonging to the *Instauratio*, but to which Part it would be difficult to say. Blackbourne, the first editor of Bacon's collected works, and the only one of all his editors who seems even to have read them, has assigned the Latin pieces to the Third Part of the *Instauratio* ; others appear to have been inclined to regard them as more properly belonging to the Fifth ; but perhaps the safest plan is to place all these dubious disquisitions by themselves, as an Appendix to the author's great work. Some of them may be considered as the original draughts, or as earlier forms, of portions of the *Instauration* which we have already examined. It is assumed on all hands that the Sixth Part of the *Instauration* was never even begun by Bacon.

The first tract in Gruter's collection is entitled ' *Cogitata et Visa de Interpretatione Naturæ, sive de Inventione Rerum et Operum* ' (Things Thought and Seen respecting the Interpretation of Nature, or the Discovery of Realities and Effects). It fills 61 pages of his little volume. Two Letters of Bacon's relating to the ' *Cogitata et Visa* ' are printed in the First Part of the *Resuscitatio*. In the first, addressed to Bishop Andrews, he says :—" I hasten not to publish ; perishing I would prevent. . . . This hath put me into these Miscellanies ; which I purpose to suppress if God give me leave

to write a just and perfect volume of Philosophy, which I go on with, though slowly. I send not your Lordship too much, lest it may glut you." It is only from the heading prefixed to this Letter by Rawley that it is ascertained to relate to the *Cogitata et Visa*. The other, similarly headed, is addressed to Sir Thomas Bodley: it is merely a short note requesting him to return the papers. "You are, I bear you witness," says Bacon, "slothful, and you help me nothing; so as I am half in conceit that you affect not the argument; for myself, I know well, you love and affect. . . . If you be not of the lodgings chalked up, whereof I speak in my preface, I am but to pass by your door." When these letters were written does not appear; but that to Bodley at least must have been written before 1608; for we have a letter from Bodley to Bacon, dated Fulham, 19 February, 1607 (that is, 1608), containing a long criticism upon the '*Cogitata et Visa*,' which he thanks Bacon for having allowed him to peruse. This letter of Bodley's was published by Gruter, in a Latin translation, along with the treatise to which it relates (*Scripta*, pp. 62—74); but the original English had been previously published in the first edition of the '*Cabala*,' 1651. "Although I myself," says Bodley, after he has gone over his various objections, "like a carrier's horse, cannot balk the beaten way in which I have been trained, yet such is my censure [judgment] of your *Cogitata*, that I must tell you, to be plain, you have very much wronged yourself and the world to smother such a treatise so long in your coffer." From this it would appear that the *Cogitata* had been written probably some years before 1608. But whether the treatise submitted to Bodley was the same that Gruter has printed with the same title may be doubted. There is no preface with the simile about the lodgings chalked up in Gruter's edition; nor indeed does the declamation (for such it is) seem almost to admit of a preface of any kind. It appears to be in fact one of the forms into which the leading views of his *Instauratio Magna* were at various times thrown by Bacon, and of which Rawley says that he had himself seen at the least

twelve—"revised year by year, one after another, and every year altered and amended in the frame thereof, till at last it came to that model in which it was committed to the press." There is not perhaps a thought in the 'Cogitata et Visa' which is not to be found in some part of the *Instauratio*; still it does not deserve to be called, as it sometimes has been, merely a rough draught of that work; it is not at all a rough or unfinished composition, but in a very remarkable degree polished, eloquent, and striking. It has never been translated into English, as far as we are aware; but there is a fragment in English, entitled 'Filum Labyrinthi, sive Formula Inquisitionis; Ad Filios; Pars Prima' (The Thread of the Labyrinth, or Formula of Inquiry; To his Sons; Part First), originally published in Stephens's Second Collection (1734), which corresponds generally, and for the most part very closely, with the commencing portion of it. This, it will be observed, is the third *Filum Labyrinthi* we have had to enumerate; the title seems to have been used by Bacon to designate any exposition of his peculiar views or system of philosophy. As for the inscription *Ad Filios* (To his Sons) here, it must apparently be understood to mean To his Disciples or Followers. We will extract the greater part of this English *Filum Labyrinthi*:—

1. Francis Bacon thought in this manner. The knowledge whereof the world is now possessed, especially that of nature, extendeth not to magnitude and certainty of works. The physician pronounceth many diseases incurable, and faileth oft in the rest; the alchemists wax old and die in hopes; the magicians perform nothing that is permanent and profitable; the mechanics take small light from natural philosophy, and do but spin on their own little threads. Chance sometimes discovereth inventions, but that worketh not in years but ages; so he saw well that the inventions known are very imperfect; and that new are not like to be brought to light, but in great length of time; and that those which are, came not to light by philosophy. . . .

4. He thought, also, that knowledge is uttered to men in a form as if every thing were finished; for it is reduced into arts and methods, which, in their divisions, do seem to include all that may be; and how weakly soever the parts are filled, yet

they carry the show and reason of a total, and thereby the writings of some received authors go for the very art: whereas antiquity used to deliver the knowledge which the mind of man had gathered, in observations, aphorisms, or short and dispersed sentences, or small tractates of some parts that they had diligently meditated and laboured, which did invite men both to ponder that which was invented and to add and supply further. But now sciences are delivered to be believed and accepted, and not to be examined and further discovered; and the succession is between master and disciple, and not between inventor and continuer or advancer; and therefore sciences stand at a stay, and have done for many ages, and that which is positive is fixed, and that which is question is kept question, so as the columns of no further proceeding are pitched; and, therefore, he saw plainly men had cut themselves off from further invention, and that it is no marvel that that is not obtained which hath not been attempted, but rather shut out and debarred.

✓ 5. He thought, also, that knowledge is almost generally sought either for delight and satisfaction, or for gain and profession, or for credit and ornament, and that every of these are as Atalanta's balls, which hinder the race of invention. For men are so far, in these courses, from seeking to increase the mass of knowledge, as of that mass which is they will take no more than will serve their turn; and if any one amongst so many seeketh knowledge for itself, yet he rather seeketh to know the variety of things than to discern of the truth and causes of them: and if his inquisition be yet more severe, yet it tendeth rather to judgment than to invention; and rather to discover truth in controversy than new matter; and if his heart be so large as he propoundeth to himself farther discovery or invention, yet it is rather of new discourse and speculation of causes than of effects and operations. And as for those that have so much in their mouths, action, and use, and practice, and the referring of sciences thereunto, they mean it of application of that which is known, and not of a discovery of that which is unknown. So he saw plainly, that this mark, namely, invention of further means to endow the condition and life of man with new powers or works, was almost never yet set up and resolved in man's intention and inquiry.

6. He thought, also, that, amongst other knowledges, natural philosophy hath been the least followed and laboured. For since the Christian faith the greatest number of wits have been employed, and the greatest helps and rewards have been con-

ferred upon divinity. And before-time, likewise, the greatest part of the studies of philosophers was consumed in moral philosophy, which was as the heathen divinity. And in both times a great part of the best wits betook themselves to law, pleadings, and causes of estate, specially in the time of the greatness of the Romans, who, by reason of their large empire, needed the service of all their able men for civil business. And the time amongst the Grecians, in which natural philosophy seemed most to flourish, was but a short space; and that, also, rather abused in differing sects and conflicts of opinions than profitably spent. Since which time natural philosophy was never any profession, nor never possessed any whole man, except, perchance, some monk in a cloister, or some gentleman in the country, and that very rarely, but became a science of passage to season a little young and unripe wits, and to serve for an introduction to other arts, especially physic and the practical mathematics; so as he saw plainly, that natural philosophy hath been intended by few persons, and in them hath occupied the least part of their time, and that in the weakest of their age and judgment.

7. He thought, also, how great opposition and prejudice natural philosophy had received by superstition, and the immoderate and blind zeal of religion; for he found that some of the Grecians which first gave the reason of thunder had been condemned of impiety; and that the cosmographers which first discovered and described the roundness of the earth, and the consequence thereof touching the antipodes, were not much otherwise censured by the ancient fathers of the Christian church; and that the case is now much worse, in regard of the boldness of the schoolmen, and their dependencies in the monasteries, who, having made divinity into an art, have almost incorporated the contentious philosophy of Aristotle into the body of Christian religion; and, generally, he perceived in men of devout simplicity this opinion: that the secrets of nature were the secrets of God, and part of that glory whereunto the mind of man, if it seek to press, shall be oppressed; and that the desire in men to attain to so great and hidden knowledge hath a resemblance with that temptation which caused the original fall; and on the other side, in men of a devout policy he noted an inclination to have the people depend upon God the more when they are less acquainted with second causes, and to have no stirring in philosophy lest it should lead to an innovation in divinity, or else should dis-

cover matter of further contradiction to divinity; but in this part, resorting to the authority of the Scriptures and holy examples, and to reason, he rested not satisfied alone, but much confirmed. For first, he considered that the knowledge of nature, by the light whereof man discerned of every living creature, and imposed names according to their propriety, was not the occasion of the fall; but the moral knowledge of good and evil affected, to the end, to depend no more upon God's commandments, but for man to direct himself. Neither could he find in any Scripture that the inquiry and science of man in any thing, under the mysteries of the Deity, is determined and restrained, but contrarywise, allowed and provoked. For concerning all other knowledge the Scripture pronounceth, "That it is the glory of God to conceal: but it is the glory of man (or of the king, for the king is but the excellency of man) to invent;" and again, "The spirit of man is as the lamp of God, wherewith he searcheth every secret;" and again, most effectually, "That God hath made all things beautiful and decent, according to the return of their seasons; also that he hath set the world in man's heart, and yet man cannot find out the work which God worketh from the beginning to the end;" showing that the heart of man is a continent of that concave or capacity wherein the content of the world, that is, all forms of the creatures, and whatsoever is not God, may be placed or received; and complaining that, through the variety of things and vicissitudes of times, which are but impediments, and not impuissances, men cannot accomplish his invention. In precedent, also, he set before his eyes, that in those few memorials before the flood, the Scripture honoureth the name of the inventors of music and works in metal; that Moses had this addition of praise, that he was seen in all the learning of the Egyptians; that Solomon, in his grant of wisdom from God, had contained, as a branch thereof, that knowledge whereby he wrote a natural history of all verdure from the cedar to the moss, and of all that breatheth; that the book of Job, and many places of the prophets, have great aspersion of natural philosophy; that the church, in the bosom and lap thereof, in the greatest injuries of times, ever preserved as holy relics, the books of philosophy, and all heathen learning; and that when Gregory, the bishop of Rome, became adverse and unjust to the memory of heathen antiquity, it was censured for pusillanimity in him, and the honour thereof soon after restored, and his own memory almost persecuted by his successor Sabin-

ian; and lastly, in our times, and the ages of our fathers, when Luther and the divines of the Protestant church on the one side, and the Jesuits on the other, have enterprized to reform, the one the doctrine, the other the discipline and manners of the Church of Rome, he saw how well both of them have awaked to their great honour and succour all human learning. And for reason, there cannot be a greater and more evident than this: that all knowledge, and especially that of natural philosophy, tendeth highly to the magnifying of the glory of God in his power, providence, and benefits appearing and engraven in his works, which, without this knowledge, are beheld but as through a veil; for if the heavens, in the body of them, do declare the glory of God to the eye, much more do they, in the rule and decrees of them, declare it to the understanding. And another reason, not inferior to this is, that the same natural philosophy principally amongst all other human knowledge, doth give an excellent defence against both extremes of religion, superstition, and infidelity: for both it freeth the mind from a number of weak fancies and imaginations, and it raiseth the mind to acknowledge that to God all things are possible; for to that purpose speaketh our Saviour in that first canon against heresies, delivered upon the case of the resurrection: "You err, not knowing the Scriptures, nor the power of God;" teaching that there are but two fountains of heresy: not knowing the will of God revealed in the Scriptures, and not knowing the power of God revealed, or at least made most sensible, in his creatures. So, as he saw well, that natural philosophy was of excellent use to the exaltation of the Divine majesty; and that which is admirable, that being a remedy of superstition, it is nevertheless a help to faith. He saw, likewise, that the former opinions to the prejudice hereof, had no true ground, but must spring either out of mere ignorance or out of an excess of devotion, to have divinity all in all; whereas, it should be only above all; both which states of mind may be best pardoned; or else out of worse causes, namely out of envy, which is proud weakness and deserveth to be despised: or out of some mixture of imposture to tell a lie for God's cause; or out of an impious diffidence as if men should fear to discover some things in nature which might subvert faith. But still he saw well, howsoever these opinions are in right reason reproved, yet they leave not to be most effectual hinderances to natural philosophy and invention.

8. He thought also, that there wanted not great contrariety

to the further discovery of sciences in regard to the orders and customs of universities, and also in regard of common opinion. For in universities and colleges men's studies are almost confined to certain authors, from which, if any dissenteth or poundeth matter of redargution, it is enough to make him thought a person turbulent; whereas, if it be well advised, there is a great difference to be made between matters contemplative and active. For in government change is suspected, though to the better; but it is natural to arts to be in perpetual agitation and growth. Neither is the danger alike of new light and of new motion or remove; and for vulgar and received opinions nothing is more usual, or more usually complained of, than that it is imposed for arrogancy and presumption for men to authorize themselves against antiquity and authors towards whom envy is ceased, and reverence by time amortised; it not being considered what Aristotle himself did, upon whom the philosophy that now is chiefly dependeth, who came with a professed contradiction to all the world, and did put all his opinions upon his own authority and argument, and never so much as nameth an author but to confute and reprove him; and yet his success well fulfilled the observation of Him that said, "If a man come in his own name, him will you receive." Men think, likewise, that if they should give themselves to the liberty of invention and travail of inquiry, that they shall light again upon some conceits and contemplations which have been formerly offered to the world, and have been put down by better, which have prevailed and brought them to oblivion; not seeing that howsoever the property and breeding of knowledge is in great and excellent wits, yet the estimation and price of them is in the multitude, or in the inclinations of princes and great persons meanly learned. So, as those knowledges are like to be received and honoured which have their foundation in the subtilty or finest trial of common sense, or such as fill the imagination, and not such knowledge as is digged out of the hard mine of history and experience, and falleth out to be in some points as adverse to common sense or popular reason, as religion or more. Which kind of knowledge, except it be delivered with strange advantages of eloquence and power, may be likely to appear and disclose a little to the world, and straight to vanish and shut again. So that time seemeth to be of the nature of a river or flood, that bringeth down to us that which is light and blown up, and sinketh and drowneth that which is solid and grave. So he

saw well that both in the state of religion, and in the administration of learning, and in common opinion, there were many and continual stops and traverses to the course of invention.

9. He thought, also, that the invention of works and further possibility was prejudiced in a more special manner than that of speculative truth; for, besides the impediments common to both, it hath, by itself, been notably hurt and discredited by the vain promises and pretences of alchemy, magic, astrology, and such other arts, which, as they now pass, hold much more of imagination and belief than of sense and demonstration. But to use the poet's language: men ought to have remembered, that although Ixion, of a cloud in the likeness of Juno, begat centaurs and chimeras, yet Jupiter, also, of the true Juno, begat Vulcan and Hebe. Neither is it just to deny credit to the greatness of the acts of Alexander, because the like, or more strange have been feigned of an Amades or an Arthur, or other fabulous worthies. But though this in true reason should be, and that men ought not to make a confusion of unbelief; yet he saw well it could not otherwise be in event, but that experience of untruth had made access to truth more difficult, and that the ignominy of vanity hath abated all greatness of mind.

10. He thought, also, there was found in the mind of man an affection naturally bred and fortified, and farthered by discourse and doctrine, which did pervert the true proceeding towards active and operative knowledge. This was a false estimation, that it should be as a diminution to the mind of man to be much conversant in experiences and particulars, subject to sense and bound in matter, and which are laborious to search, ignoble to meditate, harsh to deliver, illiberal to practise, infinite as is supposed in number, and no ways accommodate to the glory of arts. This opinion, or state of mind, received much credit and strength by the school of Plato, who, thinking that particulars rather revived the notions or excited the faculties of the mind than merely informed; and having mingled his philosophy with superstition, which never favoureth the sense, extolleth too much the understanding of man in the inward light thereof. And again, Aristotle's school, which giveth the due to the sense in assertion, denieth it in practice much more than that of Plato. For we see the schoolmen, Aristotle's successors, which were utterly ignorant of history, rested only upon agitation of wit: whereas Plato giveth good example of inquiry by induction and view of par-

ticulars, though in such a wandering manner as is of no force or fruit. So that he saw well that the supposition of the sufficiency of man's mind hath lost the means thereof.

Scarcely anything in all this will be absolutely new to the student of the *Instauratio*; but the expression is different from that with which the same thoughts are elsewhere clothed. No mind certainly was ever more completely impregnated and possessed by any peculiar set of ideas than that of Bacon was by what is called his system of philosophy; all his remarkable views and thoughts are to be found expressed in the course of his voluminous writings in many various forms. Of the remainder of the 'Cogitata et Visa' the greater part is transcribed, with some expansion or contraction, into the *Novum Organum* and other treatises that have been already noticed.

The next piece in Gruter's volume is entitled 'Descriptio Globi Intellectualis (Description of the Intellectual Globe)'. It is divided into seven chapters, of which the first four, filling only 15 pages in Gruter, are, as Tenison has remarked, only a rude draught of the Partition of the Sciences which we have in its mature and complete form in the *Advancement of Learning* and the *De Augmentis Scientiarum*. The three remaining chapters, which fill 64 of Gruter's pages, are regarded by Tenison as reducible to the Fourth Chapter of the Third Book of the *De Augmentis*, where the doctrine of the Celestial Bodies is noticed as one of the divisions of Physics.* This principal portion of the treatise is translated by Shaw, under the title of 'A Specimen of Animated Astronomy; or, An Essay towards a Philosophical History of the Heavens.' "Had it been finished," he remarks, "it might have nobly supplied the Animated Astronomy set down for deficient in the *De Augmentis*; and, as it now stands, it exhibits the whole plan, executes some considerable proportion, and instructs a less able architect to carry on the work." "The author," he further observes, "proceeds in the cautious way of inquiry, by questions and arguments on both sides; with-

* See *ante*, Vol. II. p. 75.

out undertaking to determine anything in a subject that lies so remote from direct experiment." Bacon himself proposes three things: first, to propound certain philosophical questions relating to the facts of Astronomy; secondly, to show distinctly wherein the History of the Heavens consists, and to lay down certain heads of induction, or Articles of Inquiry, concerning the Celestial Bodies; thirdly, to give directions how the things sought for should be considered when obtained, how they should be exhibited, and how recorded. The treatise, as we have it, however, embraces only the first of these three divisions. It is curious as a record, not of the state of astronomical science in Bacon's day, but of his own knowledge and notions on the subject; and it is interspersed with some ingenious observations; but for the purpose of the present review it may be dismissed without further examination.

To the same Fourth Chapter of the Third Book of the *De Augmentis* Tenison would reduce the next piece in Gruter's volume, which extends from p. 154 to p. 177, and is entitled 'Thema Coeli' (A Thesis or System of the Heaven). It may be regarded as a sequel to the preceding speculation, and is curious as giving us the conclusions upon several of the points there inquired about, which Bacon was disposed to adopt for the present, or, as he states, till his facts and inductions should be more matured. Among other things, he conceives that from the earth up to the highest point of the heaven there are three general regions, or as it were stories or floors, in respect of flame: the region in which flame is extinguished; that in which it is combined with air; and that in which it exists in a state of dispersion. He rejects the vulgar opinion that flame is merely air set on fire; affirming that air and flame are two clearly heterogeneous bodies or substances, like water and oil, sulphur and mercury. The moon, he maintains, is neither a fluid nor a solid body, but a mass of flame, although of a slow and languid kind, being in fact the first rudiment and at the same time the last sediment of the true celestial flame. The stars, he affirms, are true flames.

Then follows a long disquisition about the various kinds of motion in the heavenly bodies. The following passage is very characteristic:—"Neque ista non viderunt astronomi præstantiores," &c.—that is, "It is not that the better order of astronomers have not seen all these things, but that, intent upon what they call their art, and befooled with their dreams of perfect circles, and catching at vain subtleties, and subserviently humouring a false philosophy, they have disdained to follow nature. But that arbitrary authority assumed by the learned over nature is something worse than even the simplicity and credulity of the vulgar, at least when it goes the length of making us despise things that are manifest merely because they are manifest. Nevertheless it is a great evil, and one of very extensive operation, that the human mind, when it finds itself unable to understand nature, will try to overstand it (*cum par rebus esse non possit, supra res esse malit*)."

In the end, he denies the rotation of the earth around the sun, and at the same time maintains that the diurnal rotation does not exist either in the earth or in the heavens, but only in the air, the waters, and whatever else lies immediately outside the earth (*etiam extimis terræ*). The planets, he thinks, move with more or less velocity according as they are placed higher or lower in the heaven. "But all this," he repeats, in conclusion, "is only what we behold while standing as it were on the threshold of the history and philosophy of nature, although the farther we advance we may peradventure find the greater reason for believing that we are right. Still we again protest that we will not be permanently bound by anything we have here set down. For, in these inquiries, as in others, we are certain of our road, but the abiding place to which it may finally conduct us we do not know (*certi viæ nostræ sumus, certi sedis nostræ non sumus*)."

The 'Thema Coeli,' as far as we are aware, has not been translated.

Then follows in Gruter (pp. 178-207) the paper 'De Fluxu et Refluxu Maris' (On the Flowing and Ebbing of the Tide), which has been already noticed. And

after that comes a long disquisition (filling from p. 208 to p. 285) entitled 'De Principiis atque Originibus, secundum Fabulas Cupidinis et Coeli; sive, Parmenidis et Telesii, et præcipue Democriti, Philosophia tractata in Fabula de Cupidine' (On the Originating Principles of the Universe according to the Fables of Cupid and Coelus; or, The Philosophy of Parmenides and Telesius, and especially of Democritus, as developed in the Mythological Fable of Cupid). This has been translated by Shaw under the title of 'An Essay towards a scientific History of Natural Philosophy from the Primitive Times to the Present: deduced by way of explanation upon the Ancient Fable of Cupid.' He makes it a portion of the Fifth Part of the *Instauration*. In Blackbourne's arrangement it stands in the Third Part. Tenison considers it as properly belonging to the *Distributio*, or Plan, of the *Instauration*. It may be regarded as connected with the treatise *De Sapientia Veterum*,* in which we have also two short chapters (the 12th and 17th) on the fables of 'Coelus, or the Origins,' and of 'Cupid, or the Doctrine of Atoms.' It seems, in fact, to have been designed for an extension of or supplement to these two chapters; but it is only a fragment, and it breaks off before the fable of Coelus has been taken up, or the philosophical systems of Parmenides and Telesius more than entered upon. Telesius, or Bernardino Telesio, was an Italian, who opposed the Aristotelian doctrines, and promulgated his own views of the origin of things, in a work first published at Rome in 1565, with the title of 'De Rerum Natura juxta Propria Principia.' His system was that the productive principles of all things were Cold and Heat, which is said to have been also the doctrine of the Eleatic philosopher Parmenides, who lived five centuries before the commencement of our era.

Gruter's next piece, being the first of those designated *Impetus Philosophici*, is entitled 'Indicia Vera de Interpretatione Naturæ' (True Indications respecting

* See our First Volume, pp. 91-112.

the Interpretation of Nature), and extends from p. 285 to p. 323. But the first eight pages are the same with the Preface to the *Novum Organum*.^{*} What follows, on p. 293, has the new heading of 'Partis Instaurationis Secundae Delineatio et Argumentum' (The Delineation and Argument of the Second Part of the *Instauration*): This is a compendium of the doctrine of the First Book of the *Novum Organum*, and may be another of the many various forms of that treatise which Rawley speaks of having seen. At the end, however, in speaking of a general *redargutio*, or refutation, of the existing systems of philosophy, which he is preparing, Bacon introduces a friend newly arrived from France, who gives him an account of a meeting of distinguished persons at which he had lately been present in that country, when a stranger of singularly serene and benign aspect, who had entered after they were all seated, delivered an eloquent oration on that theme, which he goes on to report. But what Gruter gives is only the commencement; the greater part of the declamation was first given in what is called Stephens's Second Collection, published in 1734, and again in 1736.

Various pieces already noticed occupy the next 125 pages of Gruter's volume. Then at p. 448, and still included under the running title of *Impetus Philosophici*, we have a short fragment entitled 'Aphorismi et Consilia de Auxiliis Mentis et Accensione Luminis Naturalis' (Aphorisms and Counsels respecting the Helps of the Mind and the Kindling of its Natural Light). It concludes with or is followed by a Prayer similar to one which is at the end of the *Distributio*.

Next follows, at p. 451, a tract entitled 'De Interpretatione Naturae Sententiae XII.' (On the Interpretation of Nature Twelve Sentences or Rules); the first four headed 'On the Condition (that is, the proper function or duty) of Man;' the next four, 'On the Impediments to Interpretation;' the ninth, 'On the Character and Disposition (*moribus*) of the Interpreter;'

^{*} See *ante*, Vol. II. p. 152.

the tenth, 'On the Office of the Interpreter;' the eleventh and twelfth, 'On the Anticipation (*provisu*) of Things.' In the two last the discourse assumes the form of an address by the author to a son or disciple (*mi fili*); and there is tacked to it a further discourse in the same form, entitled in Gruter 'Tradendi Modus Legitimus' (The Legitimate Mode of Handing down the Sciences), but in Stephens's Second Collection, where a part of it is also printed from another original copy, 'Temporis Partus Maximus, sive De Interpretatione Naturæ Lib. 3' (The Greatest Birth of Time, or the Third Book of the Interpretation of Nature). The greater part of this Latin piece has been translated by Shaw, under the title of 'A Short Scientific Critique on the Works of the more Eminent Philosophers, Ancient and Modern:' and the following Specimen is transcribed from his version:—

We plainly perceive that the sciences will not be considerably advanced till men shall be once made thoroughly acquainted with the proper characters and merits of those ancient and modern philosophers they so much admire. The present design is, therefore, to deal roundly, and fix a mark upon such pretended philosophers as we take to have been more fabulous than the poets: debauchers of men's minds, and falsifiers of the works of nature, and to make, at least, as free with that degenerate servile tribe, their followers, flatterers, and the hirelings who corrupt mankind for gain. And we shall take the liberty to cite each of them by name, lest, as their authority is so great, we should be apprehended only to act a part, and under colour side with some or other of them, since they cherish such violent disputes and animosities among themselves.

Let Aristotle first appear, whom we charge 1. with abominable sophistry; 2. useless subtilty; and 3. a vile sporting with words. Nay, when men by any accident, as by a favourable gale, arrived at any truth, and there cast anchor, this man had the assurance to fetter the mind with the heaviest irons; and, composing a certain art of madness, enslaved mankind with words.

Again, from the nursing and tutoring of this man have arisen a shoal of cunning triflers, who, turning their backs

upon nature and all the light of things and history, overspread the world with numerous mock schools, raised by the restless agitation of wit, principally upon that extremely ductile matter of his precepts and positions. But they, indeed, are more excusable than their baughty dictator, because they did not, like him, offend against better light and knowledge : for he, after having trod in the open plains of history, and viewed the works of nature, yet dug to himself a dungeon and filled it with the vainest idols. And what adds to his guilt, he has, even upon the history of particulars, raised certain cobweb structures which he would palm upon mankind for causes, whilst in reality they are matters of no validity nor value, but nearly resembling those, which, in our time, that antipode to things, as well as to himself, Cardan, busied himself in forming.

But, whilst I thus arraign the works of Aristotle, let me not be supposed a conspirator and in league with Ramus, that modern rebel against him. I have no affection for that skulking hole of ignorance, that destructive bookworm of learning, that father of epitomes, who, when he wrings and presses things with the shackles of his method and contraction, the substance, if there was any, immediately starts out and escapes him, whilst he grasps nothing but the empty chaff and exhausted carcass.

Aquinas has gone further, and spun a variety of things out of nothing : leaving, by way of compensation, a solitude in things themselves. And although he has done this, yet he has the assurance to be frequently talking of human uses : so that I take him for a most prevaricating sophister ; and the same accusations I likewise bring against Scotus and his followers.

Let Plato next appear, whom we charge with being—1. A well-bred sophister ; 2. A tumid poet ; and 3. A fanatical divine, who, by finely polishing and working together certain philosophical rumours, and dissembling his pretence to knowledge, endeavoured to loosen and unsettle men's minds by vague inductions : and has thus, indeed, supplied abundant matter of table-talk to men of letters, in respect of civil conversation, polite life, ornament, and sweetness of familiar discourse. But, when he falsely asserted that truth was not an inhabitant of the human mind, but a stranger come from far, and turned men's thoughts from the history of nature, and from things themselves (though never sufficiently applied thereto), and taught the mind to enter into itself, and there,

under the name of contemplation, to tumble over its own blind and confused idols: then it was he committed the capital crime of which we accuse him; and no less impiously has he introduced the canonization of folly, and had the assurance to screen his degenerate and corrupt notions under the cloak of religion; and here lies the strength of the charge. But for his being the father of philology, polite literature, and elegant writing, who, by his example, authority, and success, captivated, persuaded, and led numbers to content themselves with a character for wit, politeness, agreeableness, and a popular knowledge of things, to the detriment and corruption of a severe and rigorous inquiry after truth; we account this a less heinous offence; and among the men thus captivated by him, we reckon Cicero, Seneca, and Plutarch, with numerous others no way comparable to them.

Let us next proceed to the physicians, and first summon Galen to appear, whom we implead—1. As a man of a very narrow mind; 2. A deserter of experience; and 3. An idle caviller. This is the man that would screen the ignorance and sloth of physicians from their deserved reproach, and preserve them unattacked; whilst himself most feebly and unequally pretends to perfect their art and fill up their office. This is the man that, like the raging dog-star, or the plague, devotes mankind to death and destruction by pronouncing such tribes of diseases incurable, taking away all glimmering of hope, and leaving no room for future industry. This is the man who makes his own fiction of mixture to be nature's sole prerogative. This is the man that is everywhere fond of showing and boasting the sedition, strife, and disagreement betwixt the celestial heat and that of fire: and upon this and all other occasions maliciously curbs the human power, and endeavours to surround and protect ignorance with eternal despair. It is owing to this man's unworthiness that we dwell no longer upon his charge; let him then be dismissed, and take along with him his whole train of associates; those dispensatory-compilers from the Arabians, who have shown such folly in their theories, and from their supine and jejune conjectures amassed together such heaps of promises, instead of real helps, from vulgar remedies. And let the rear be brought up with that superficial tribe of modern doctors whose names are not worth the mentioning.

We must, however, make some difference in this tribe of triflers: the worst and most absurd sort whereof are those who

have pent the whole art into strict methods and narrow systems, which men commonly cry up for the sake of their regularity and style: and such a kind of author is Fernelius. But they are less prejudicial to the art and to mankind, who deliver a large stock and variety of observations, experiments, and particular cases, even though they pollute and obscure them with their absurd and foolish reasons, idle hypotheses, and solutions, like Arnoldus de Villa Nova and others of the same stamp.

On the opposite side stand the tribe of chemists, with Paracelsus at their head, who, for his insolence, deserves to be separately chastised as a flagrant example: for those accused above are only falsifiers and pretenders, but this man is throughout a monster. What Bacchanalian oracles are those he utters in meteorology, whilst he is ridiculously aping of Epicurus? All that Epicurus offers upon the subject is but drowsy opinion, which he unconcernedly left to its fate; but Paracelsus, blinder than fate and more rash than chance, is ready to avouch the absurdest falsehoods. What dreams of resemblances, correspondences, and parallels of the productions of his elements, are given us by this fanatical linker-together of idols? His three principles, indeed, might be received with some utility, as having a foundation in nature: but he is continually wresting them to every thing according to his great dexterity in delusion and imposture. But these are not the worst of his crimes; for, besides all this, he, like a sacrilegious impostor, has mixed and polluted divine things with natural, sacred with profane, fables with heresies, and human truths with religious; so as, not, like the ancient sophists, to have hid, but utterly extinguished that sacred thing he has so frequently in his impious mouth, the light of nature. The sophists were only deserters of experience, but Paracelsus has betrayed it: and subjecting the crude and personated evidence of things to rules of contemplation, and deriving the various alterations of substances from imaginary motions, he has thus endeavoured to corrupt the fountains of science and dethrone the human mind. At the same time, so far is he from understanding or justly representing experience, that he has added to the trouble and tediousness in experimenting, of which the sophists complain, and to which the empirics are unequal. In short, he has every where to the utmost magnified the absurd pretences of magicians, countenanced such extravagancies, and encouraged others to believe them from his own assurances; being thus at once the work and servant of imposture.

It is great pity he should ever have found such an abettor and apologist as Severinus, whose abilities might have been much better employed than upon the fooleries of that man. It is Severinus who has modulated the brayings of that ass, and by his own skill in music played them sweetly off in a variety of tunes, and thus converted shocking and monstrous fictions and falsehoods into pleasing and delightful fables. This author, indeed, is the more excusable, in that being of the doctrine of the sophists, which is not only barren of works but professedly tends to introduce despair, he went in quest of firmer foundations in this general decay of philosophy and arts. And thus, when the works of Paracelsus offered themselves and came recommended with pompous show, the subterfuge of obscurity, affinity with religion, and other impostures, Severinus gave into them, delivered not the real fountains of things, but only threw out promises and hopes with somewhat of warmth and indignation; whereas, would he have acted as he ought, he should have left the determinations and maxims of wit and genius, and gone over to the real doctrines and precepts of nature, which alone is the way to shorten arts and lengthen life.

This charge we have brought against Paracelsus seems to astonish the rest of the chemists, who greedily swallow those decrees and points of doctrine which he has rather promulgated and promised, than actually laid down or made good, and defended them with arrogance instead of caution. His whole tribe of followers appear linked to one another by the lying spirit that shows itself in their sworn hopes and promises which they are constantly boasting. However, by wandering through the wilds of experience they sometimes stumble upon certain useful discoveries, not by reason but by accident: whence, proceeding to form theories, they plainly carry the smoke and tarnish of their art along with them. For as that simple youth, who, finding a stick upon the shore, would needs convert it into a ship, so these childish operators at the furnace must needs be raising philosophy from a few experiments of distillation, and introducing, at every turn, their own idols of separation and analysis where no traces of them are really found.

Yet we do not accuse them all in the lump, but make a difference between that little serviceable set who, being not very solicitous about raising of theories, principally practise a certain mechanical subtilty in searching out and laying hold

of new inventions and discoveries with their extensive uses, after the manner of Friar Bacon, and distinguish these from that impious tribe who endeavour only at procuring applause to their theories, and court and beg it by a pretended zeal for religion, by large promises and the art of imposture, which is the way of Basil Valentine, Hollandus, and much the greatest part of the chemical authors.

Let Hippocrates be next called to the bar, whom we arraign — 1. As a creature patched up of antiquity; and 2. A retailer of other men's knowledge, under whose authority both Galen and Paracelsus ridiculously endeavour to shelter themselves like asses under a tree. To do him justice, he seems to have had his eyes at first perpetually fixed upon experience; but then they are fixed indeed, stupid and immoveable, without ranging and searching for noble, manly, and full views: and afterwards, recovering a little from this stupidity, he takes in certain idols, though not those monstrous ones of theories, but such as are more neat, elegant, and surround the limits of history, and having drunk these in, he becomes swollen, sophistical; and, according to the custom of the age he lived in, wraps himself up in brevity, and thus, as his followers imagine, utters oracles, of which they are ambitious of being thought the interpreters; whilst in reality he does no more than deliver sophistry by broken, short, and interrupted sentences, so as to prevent a confutation; or else in a haughty manner records such observations as are trite, vulgar, and known to every rustic.

Celsus, as he is justly allowed, comes nearly up to the views and designs of Hippocrates, which are not so faulty as they are useless; but he shows himself a more practised sophister and a better modeller of history than his master. He is, however, for checking the advancement of science from moral and civil considerations: thus paring off the extremities of errors instead of cutting them down at the root.

This free censure of the most eminent men will doubtless have a strange appearance to many; and yet, in truth, we produce it not as an inflamed or aggregated accusation, but as the real state of the case, representing the very bottom of their writings, which mankind are so fond of and take for the pillars and fabric of all arts and sciences.

The only piece in Gruter's volume which we have not yet noticed is a short paper, at p. 479, entitled 'De

Interpretatione Naturae Prooemium' (A Preface respecting the Interpretation of Nature). This Terison would connect with the existing Preface to the *Instauratio*.* And it may have been written with the intention of introducing either that work as a whole, or the portion of it designated the *Novum Organum*. It is, however, peculiarly interesting and remarkable for the almost autobiographical way in which it is written, although, never having been translated, it has attracted little if any attention from Bacon's biographers. "Ego cum me ad utilitates humanas natum existimarem, &c." it begins; that is, "When I came to conceive of myself as born for the service of humanity, and to look upon state employment as amongst those things which are of public right, and patent to all like the wave or the breeze, I proceeded both to inquire what might most conduce to the benefit of men, and to deliberate for what special work I myself had been best fitted by nature. Thereupon I found that no other thing was of so great merit in reference to the human race as the discovery and authorship (*auctoramentum*) of new truths and arts, by which human life may be improved. For even in early times, among uncultivated men, I perceived that the inventors and teachers of the first rude arts had been consecrated and adopted into the number of the Gods; and I remarked that the actions of the heroes who had either built cities, or distinguished themselves as legislators, or wielded supreme power righteously, or overthrown unjust dominations, had been circumscribed in their fame within certain narrow bounds of time and place; but that, as it seemed to me, the invention of new arts, although a thing of less pomp, had a greater adaptation for universality and eternity. And, above all, if any one, not merely bringing to light some particular invention, of however great utility, kindled a new light in nature, which as soon as it dawned illustrated those unvisited coasts lying around whatever is already known, and then as it rose higher

* See *ante*, Vol II. p. 13.

laid open and completely revealed to view whatever had before been hidden farthest away, that individual seemed to me to be the enlarger of the empire of man over the universe, the true champion of human liberty, and stormer of the necessities of things. Myself, moreover, I apprehended to be formed rather for the contemplation of truth than for aught else, as having an understanding both sufficiently moveable for discerning the resemblances of things (which is the point of highest importance), and sufficiently fixed and intent for observing the subtleties of differences, and as being also one who had in me the desire of inquiry, and the patience to doubt, and an enjoyment in meditation, and an indisposition to hasty assertion, and a facility of retracting, and a solicitude for orderly arrangement, while at the same time I was neither unduly addicted to novelty nor carried away by admiration of antiquity, and hated all imposture. I judged, therefore, that my nature had a certain inherent intimacy and relationship with truth. Yet, seeing that both by descent and education I had been imbued in civil affairs, and inasmuch as I was still a young man was sometimes shaken in my opinions, and thinking that I owed something peculiar to my country which was not equally due in all other cases, and hoping that, if I might obtain some honourable rank in the state, I should accomplish what I had designed with greater advantages in the exercise of my genius and my industry, I both applied myself to the acquirement of political knowledge, and, with such modesty as beseemed and in as far as it could be done without any disingenuousness, endeavoured to commend myself to such friends as had it in their power to assist my advancement. There was this too, that the things that have been mentioned, of whatever importance they may be reckoned, do not penetrate beyond the condition and amelioration of this mortal life, but a hope entered my mind that, born in an age when religion was in no very prosperous state, I might be able, if I should rise to civil dignities, to effect something which would be profitable for the salvation of souls. But when afterwards my mind was

weaned from ambition, and my life was as it were at a stand, and my health beginning to give way admonished me of my unfortunate procrastination, and I was assailed with frequent fears that I should never in any way fulfil my duty if I neglected those pursuits by means of which I might myself through myself serve men, and gave up my time to those which depended upon the will of another, I wholly withdrew from those other objects, and according to my earlier determination dedicated myself wholly to the present work. Nor is this resolution lessened for that I perceive in the state of the times the approaching decline and downfall of all that system of doctrine and learning which is now in vogue; for, although I dread no incursions of barbarians (unless perchance the Spanish empire should still grow stronger, and at last oppress and reduce to debility other nations by conquest and itself by its own weight), yet, what from civil wars (which, by reason of certain changes of manners of but recent introduction, appear to me to be about to involve many countries), and from the malignity of religious sects, and from those compendious systems of artifice and caution which have crept into the place of erudition, no less a tempest seems to impend over literature and science. The art of printing cannot suffice against these evils. And so that peaceable learning, which is fostered by ease and quiet, and flourishes under the encouragement of rewards and praise, and cannot sustain the vehemence of conflicting opinion, and is eluded by artifices and impostures, gets buried under those incumbrances of which I have spoken. Far different is the case with that science, the dignity of which is defended by its useful purposes, and its accomplished works. And, as I am thus almost secure from the injuries of time, so for the injuries that may be attempted by men I do not distress myself. For if any one shall say that my philosophy soars too high, I merely reply, that in civil affairs is the place for modesty, in speculation is the place for truth. But if any person shall at once demand actual performances, I say, without any attempt at deceit, that I, a man, although not yet old,

of failing health, involved in the business of the state, who have attempted a thing the most obscure of all others without either guide or light, have done enough if I have constructed a machine and art of discovery although I may never have applied it or put it in motion. And with the same candour I profess that the legitimate interpretation of nature, in our first ascent, and before we have come to some landing-place of general principles, ought to be kept pure and separate from all application to works." Then follow a few sentences in enforcement of this assertion, and in anticipation of one or two other objections. After which the paper concludes thus:—"But it is for the sake of others if I attempt any applications of my philosophy. For myself, nothing which is external to the establishment of its principles is of any interest to me. For neither am I a hungerer after fame, nor have I after the manner of heresiarchs any ambition to originate a sect, and, as for deriving any private emolument from such labours, I should hold the thought as base as it is ridiculous. Enough for me the consciousness of desert, and that coming accomplishment of real effects which fortune itself shall not be able to intercept." In no other of his writings has Bacon given such full and frank expression to his lofty confidence in the destiny of his philosophy, or to his anticipation of future renown; nowhere else has he told us so much of the history of his mind, and of the inner spirit of his life.

There remain only two or three more philosophical discourses, all in English. The most important was first published in Stephens's Second Collection, and is there entitled 'Valerius Terminus, or The Interpretation of Nature; with the Annotations of Hermes Stella; a few fragments of the First Book.' "None of the Annotations of Stella," it is added, "are set down in these fragments." But Stella, we presume, is a fictitious name, as well as Valerius Terminus. The paper consists of two parts;—the first composed of portions of several chapters of the complete treatise on the sixteenth inclusive; the second, of what is described as "An Abridgment of

divers chapters of the First Book of the Interpretation of Nature." Most, if not all, that is in the *Valerius Terminus* is to be found in the *Novum Organum*, of which it is probably to be considered as a fragment of an early sketch or rough draught, prepared perhaps at a time when it was intended that the work should be published in English. But much of the first part of it especially has all Bacon's wonderful power of style. Here is a portion of the First Chapter, entitled 'Of the Limits and End of Knowledge:—

To conclude then: let no man presume to check the liberality of God's gifts, who, as was said, "hath set the world in man's heart." So as whatsoever is not God, but parcel of the world, he hath fitted it to the comprehension of man's mind, if man will open and dilate the powers of his understanding as he may.

But yet evermore it must be remembered, that the least part of knowledge passed to man by this so large a charter from God, must be subject to that use for which God hath granted it, which is the benefit and relief of the state and society of man; for otherwise all manner of knowledge becometh malign and serpentine, and therefore, as carrying the quality of the serpent's sting and malice, it maketh the mind of man to swell, as the Scripture saith excellently, "Knowledge bloweth up, but charity buildeth up." And again, the same author doth notably disavow both power and knowledge, such as is not dedicated to goodness or love; for saith he, "If I have all faith, so as I could remove mountains," there is power active; "if I render my body to the fire," there is power passive; "if I speak with the tongues of men and angels," there is knowledge, for language is but the conveyance of knowledge, "all were nothing."

And therefore it is not the pleasure of curiosity, nor the quiet of resolution, nor the raising of the spirit, nor victory of wit, nor faculty of speech, nor lucre of profession, nor ambition of honour or fame, or enablement for business, that are the true ends of knowledge; some of these being more worthy than other, though all inferior and degenerate; but it is a restitution and reinvesting, in great part, of man to the sovereignty and power, for whosoever he shall be able to call the creatures by their true names, he shall again command them, which he had in his first state of creation. And to speak plainly and clearly,

it is a discovery of all operations and possibilities of operations from immortality, if it were possible, to the meanest mechanical practice. And therefore knowledge that tendeth but to satisfaction is but as a courtesan, which is for pleasure and not for fruit or generation. And knowledge that tendeth to profit, or profession, or glory, is but as the golden ball thrown before Atalanta; which while she goeth aside and stoopeth to take up, she hindereth the race. And knowledge referred to some particular point of use, is but as Harmodius, which putteth down one tyrant; and not like Hercules, who did perambulate the world to suppress tyrants, and giants, and monsters in every part.

It is true, that in two points the curse is peremptory, and not to be removed: the one that vanity must be the end in all human effects; eternity being resumed, though the revolutions and periods may be delayed. The other that the consent of the creature being now turned into reluctance, this power cannot otherwise be exercised and administered but with labour, as well in inventing as in executing; yet nevertheless chiefly that labour and travel which is described by the sweat of the brows more than of the body; that is, such travel as is joined with the working and discussion of the spirits in the brain; for as Solomon saith excellently, "The fool putteth to more strength, but the wise man considereth which way;" signifying the election of the mean to be more material than the multiplication of endeavour. It is true also that there is a limitation rather potential than actual, which is when the effect is possible, but the time or place yieldeth not the matter or basis whereupon man should work. But notwithstanding these precincts and bounds, let it be believed, and appeal thereof made to time, with renunciation nevertheless to all the vain and abusing promises of alchemists and magicians, and such like light, idle, ignorant, credulous, and fantastical wits and sects, that the new found world of land was not greater addition to the ancient continent, than there remaineth at this day a world of inventions and sciences unknown, having respect to those that are known, with this difference, that the ancient regions of knowledge will seem as barbarous compared with the new, as the new regions of people seem barbarous compared to many of the old.

The dignity of this end, of endowment of man's life with new commodities, appeareth by the estimation that antiquity made of such as guided thereunto; for whereas founders of

states, lawgivers, extirpers of tyrants, fathers of the people, were honoured but with the titles of worthies or demi-gods, inventors were ever consecrated amongst the gods themselves. And if the ordinary ambitions of men lead them to seek the amplification of their own power in their countries, and a better ambition than that hath moved men to seek the amplification of the power of their own countries amongst other nations, better again and more worthy must that aspiring be which seeketh the amplification of the power and kingdom of mankind over the world : the rather because the other two prosecutions are ever culpable of much perturbation and injustice ; but this is a work truly divine, which cometh in *aura leni*, without noise or observation.

The access also to this work hath been by that part or passage, which the Divine Majesty, who is unchangeable in his ways, doth infallibly continue and observe ; that is the felicity wherewith he hath blessed an humility of mind, such as rather laboureth to spell and so by degrees to read in the volumes of his creatures, than to solicit and urge, and as it were, to invoke a man's own spirit to divine and give oracles unto him. For as in the inquiry of divine truth the pride of man hath ever inclined to leave the oracles of God's word, and to vanish in the mixture of their own inventions ; so in the self-same manner in inquisition of nature, they have ever left the oracles of God's works, and adorned the deceiving and deformed imagery, which the unequal mirrors of their own minds have represented unto them. Nay, it is a point fit and necessary in the front and beginning of this work without hesitation or reservation to be professed, that it is no less true in this human kingdom of knowledge than in God's kingdom of heaven, that no man shall enter into it, "except he become first as a little child."

Another much shorter piece also published in Stephens's Second Collection is entitled 'Mr. Bacon in Praise of Knowledge.' From this inscription it would seem to have been written before 1603, when Bacon was knighted. He had, however, already adopted the opinions with respect to the current philosophy which he ever after retained, as may sufficiently appear from the following extract :—

Are we the richer by one poor invention by reason of all the learning that hath been these many hundred years ? The in-

dustry of artificers maketh some small improvement of things invented; and chance sometimes in experimenting maketh us to stumble upon somewhat which is new; but all the disputation of the learned never brought to light one effect of nature before unknown. When things are known and found out, then they can descant upon them, they can knit them into certain causes, they can reduce them to their principles. If any instance of experience stand against them, they can range it in order by some distinctions. But all this is but a web of the wit, it can work nothing. I do not doubt but that common notions which we call reason, and the knitting of them together, which we call logic, are the art of reason and studies. But they rather cast obscurity than gain light to the contemplation of nature. All the philosophy of nature which is now received, is either the philosophy of the Grecians, or that other of the alchemists. That of the Grecians hath the foundations in words, in ostentation, in confutation, in sects, in schools, in disputations. The Grecians were, as one of themselves saith, "You Grecians, ever children." They knew little antiquity; they knew, except fables, not much above five hundred years before themselves. They knew but a small portion of the world. That of the alchemists hath the foundation in imposture, in auricular traditions and obscurity. It was catching hold of religion, but the principle of it is, "Populus vult decipi." So that I know no great difference between these great philosophers, but that the one is a loud crying folly, and the other is a whispering folly. The one is gathered out of a few vulgar observations, and the other out of a few experiments of a furnace. The one never faileth to multiply words, and the other ever faileth to multiply gold. Who would not smile at Aristotle, when he admireth the eternity and invariableness of the heavens, as there were not the like in the bowels of the earth? Those be the confines and borders of these two kingdoms, where the continual alteration and incursion are. The superficies and upper parts of the earth are full of varieties. The superficies and lower parts of the heavens, which we call the middle region of the air, is full of variety. There is much spirit in the one part that cannot be brought into mass. There is much massy body in the other place that cannot be refined to spirit. The common air is as the waste ground between the borders. Who would not smile at the astronomers; I mean not these few carmen which drive the earth about, but the ancient astronomers, which feign the moon to be the swiftest of

the planets in motion, and the rest in order, the higher the slower; and so are compelled to imagine a double motion; whereas how evident is it, that that which they call a contrary motion is but an abatement of motion. The fixed stars overgo Saturn, and so in them and the rest all is but one motion, and the nearer the earth the slower. A motion also whereof air and water do participate, though much interrupted. But why do I in a conference of pleasure enter into these great matters, in sort that pretending to know much, I should forget what is seasonable? Pardon me, it was because all things may be endowed and adorned with speeches, but knowledge itself is more beautiful than any apparel of words that can be put upon it. And let not me seem arrogant without respect to these great reputed authors. Let me so give every man his due, as I give Time his due, which is to discover truth. Many of these men had great wits, far above mine own, and so are many in the universities of Europe at this day. But alas, they learn nothing there but to believe; first to believe that others know that which they know not; and after themselves know that which they know not. But indeed facility to believe, impatience to doubt, temerity to answer, glory to know, doubt to contradict, end to gain, sloth to search, seeking things in words, resting in part of nature; these and the like have been the things which have forbidden the happy match between the mind of man and the nature of things; and in place thereof have married it to vain notions and blind experiments; and what the posterity and issue of so honourable a match may be, it is not hard to consider. Printing, a gross invention; artillery, a thing that lay not far out of the way; the needle, a thing partly known before; what a change have these three made in the world in these times; the one in the state of learning, the other in the state of war, the third in the state of treasure, commodities, and navigation! And those, I say, were but stumbled upon and lighted upon by chance. Therefore, no doubt, the sovereignty of man lieth hid in knowledge; wherein many things are reserved, which kings with their treasure cannot buy, nor with their force command; their spies and intelligencers can give no news of them; their seamen and discoverers cannot sail where they grow: now we govern nature in opinions, but we are thrall unto her in necessity; but if we would be led by her in invention, we should command her in action.

Lastly, there is a paper entitled 'A Discourse touching the Helps for Intellectual Powers,' originally pub-

lished in the First Part of the *Resuscitatio* (1657). It commences thus:—

I did ever hold it for an insolent and unlucky saying, “*Faber quisque fortunæ suæ*,” except it be uttered only as a hortative or spur to correct sloth. For otherwise, if it be believed as it soundeth, and that a man entereth into a high imagination that he can compass and fathom all accidents; and ascribeth all successes to his drifts and reaches, and the contrary to his errors and sleepings, it is commonly seen that the evening fortune of that man is not so prosperous as of him that without slackening of his industry attributeth much to felicity and Providence above him. But if the sentence were turned to this, “*Faber quisque ingenii sui*,” it were somewhat more true, and much more profitable, because it would teach men to bend themselves to reform those imperfections in themselves, which now they seek but to cover, and to attain those virtues and good parts, which now they seek but to have only in show and demonstration. Yet notwithstanding every man attempteth to be of the first trade of carpenters, and few bind themselves to the second; whereas nevertheless the rising in fortune seldom amendeth the mind; but on the other side the removing of the stands and impediments of the mind doth often clear the passage and current to a man's fortune. But certain it is, whether it be believed or no, that as the most excellent of metals, gold, is of all others the most pliant and most enduring to be wrought; so of all living and breathing substances, the perfectest man is the most susceptible of help, improvement, impression, and alteration, and not only in his body but in his mind and spirit; and there again not only in his appetite and affection, but in his powers of wit and reason.

There are many proofs, it is then remarked, of what great things may be done with the body by exercise and custom. “It is true, no doubt, that some persons are apter than others; but so as the more aptness causeth perfection, but the less aptness doth not disable: so that, for example, the more apt child that is taken to be made a *funambulo* (rope-dancer) will prove more excellent in his feats; but the less apt will be *gregarius funambulo* (an ordinary rope-dancer) also.” The will is still more obedient, and admits more medicines to cure and alter it. Of these the most sovereign is religion; the next is opi-

nion and apprehension; the third is example; the fourth is, when one affection is heated and corrected by another, as cowardice by shame; "and lastly, when all these means or any of them have new-framed or formed human wits, then doth custom and habit corroborate and confirm all the rest." The effect of any remedy applied to the mind is usually either to reform the affections really and truly, or else to conceal them, and sometimes to pretend and represent them; "of the former sort whereof the examples are plentiful in the schools of philosophers, and in all other institutions of moral virtue; and of the other sort the examples are more plentiful in the courts of princes and in all politic traffic; where it is ordinary to find, not only profound dissimulations, and suffocating the affections, that no note or mark appear of them outwardly; but also lively simulations and affectations, carrying the tokens of passions which are not, as *risus jussus* (the commanded laugh) and *lacrymae coactae* (the forced tears), and the like." The proper subject indicated by the title of the paper is then entered upon, but only in a few undigested notes. "The intellectual powers," it is observed, "have fewer means to work upon them than the will or body of man; but the one that prevailleth, that is, exercise, worketh more forcibly in them than in the rest." 'Five Points' relating to the subject of Exercises are afterwards set down; and then the following remarks are made in conclusion:—

The exercises in the universities and schools are of memory and invention; either to speak by heart that which is set down *verbatim*, or to speak *extempore*; whereas there is little use in action of either or both; but most things which we utter are neither verbally premeditated nor merely extemporal. Therefore exercise would be framed to take a little breathing and to consider of heads; and then to fit and form the speech *extempore*. This would be done in two manners; both with writing and tables, and without; for in most actions it is permitted and passable to use the note, whereunto if a man be not accustomed, it will put him out.

There is no use of a narrative memory *in accademiis*, namely, with circumstances of times, persons, and places, and with

names ; and it is one art to discourse and another to relate and describe ; and herein use and action is most conversant.

Also to sum up and contract, is a thing in action of very general use.

This paper, or at least the first part of it, was sent by Bacon to his friend, the learned Sir Henry Saville, Provost of Eton College, accompanied with a letter in which he tells Sir Henry that the thoughts he had hastily set down had occurred to him as he was returning home from a visit he had made to him on his invitation at Eton, "where," says he, "I had refreshed myself with company which I loved." Sir Henry Saville was Provost of Eton from 1596 till his death in February, 1622. It is probable that this letter was addressed to him towards the close of his incumbency. He was succeeded as Provost by Mr. Thomas Murray, who, however, held the office only for a few months, having died on the 1st of April, 1623. Upon the occurrence of this last vacancy, or rather when it was anticipated, Bacon, in his fallen fortunes, made application for the place. Among his Letters published by Birch (1763) is one to Mr. Secretary Conway, dated from Gray's Inn, the 25th of March, in which he says, "Good Mr. Secretary, when you did me the honour and favour to visit me, you did not only in general terms express your love unto me, but, as a real friend, asked me whether I had any particular occasion wherein I might make use of you. At that time I had none ; now there is one fallen. It is, that Mr. Thomas Murray, Provost of Eton, whom I love very well, is like to die. It were a pretty cell for my fortune. The college and school I do not doubt but I shall make to flourish. His majesty, when I waited on him, took notice of my wants, and said to me, that, as he was a king, he would have care of me. This is a thing somebody would have ; and costs his majesty nothing." Inclosed was a shorter note to the king, in which we find him repeating the pathetic expression—"Your beadsman addresseth himself to your majesty *for a cell to retire into.*" Conway's reply, dated Royston, March 27th, informs Bacon

that he had delivered his letter to the king; adding, "I will give you his majesty's answer, which was; That he could not value you so little, or conceive you would have humbled your desires and your worth so low; that it had been a great deal of ease to him to have had such a scantling of your mind, to which he could never have laid so unequal a measure." His majesty, Conway goes on to state, further said that, since Bacon's intentions moved that way, he would study his accommodation; and, although a sort of engagement had been already made with a Sir William Becher, he expressed a hope that some other way might perhaps be found of satisfying that person. Becher, it appears, had obtained a promise of the place from the Marquis (soon after this created Duke) of Buckingham, who was now in Spain, and upon whose friendship Bacon would otherwise have chiefly relied. "My most noble friend, the marquis," he had said in writing to Conway, "is now absent. Next to him I could not think of a better address than to yourself, as one likeliest to put on his affection." He continued, however, to press the matter. Acknowledging Conway's answer on the 31st, he wrote:—"I am very much bound to his majesty, and I pray you, Sir, thank his majesty most humbly for it, that, notwithstanding the former designment of Sir William Becher, his majesty, as you write, is not out of hope, in due time, to accommodate me of this cell, and to satisfy him otherwise. Many conditions, no doubt, may be as contenting to that gentleman, and his years may expect them. But there will hardly fall, especially in the spent hour-glass of my life, anything so fit for me, being a retreat to a place of study so near London, and where, if I sell my house at Gorhambury, as I purpose to do, to put myself in some convenient plenty, I may be accommodated of a dwelling for summer-time. And, therefore, good Mr. Secretary, further this his majesty's good intention by all means, if the place fall." He had also written in urgent though general terms both to Buckingham on the 30th, and to Count Gondomar on the 28th, intrusting the letters, and, as it would seem, the specific explanation of what he wanted, to Sir John

Epsley, who was then setting out for Spain. And perhaps another letter, entreating his friendly services, which he sent to Gondomar soon after by Mr. Tobie Matthew, may relate to the same affair. In the end, however, the Provostship was given neither to Bacon nor to Sir William Becher, but to Sir Henry Wotton, who was inducted on the 26th of July, 1624.

Bacon received no other place or office. His only cell of rest continued to be his old lodgings in Gray's Inn Square, from which, however, he occasionally retired to his country-seat at Gorhambury. "He died," says Dr. Rawley, "on the 9th day of April in the year 1626, in the early morning of the day then celebrated for our Saviour's resurrection, in the sixty-sixth year of his age, at the Earl of Arundel's house in Highgate, near London, to which place he casually repaired about a week before; God so ordaining, that he should die there of a gentle fever, accidentally accompanied with a great cold, whereby the defluxion of rheum fell so plentifully upon his breast that he died by suffocation." A short time before his death he dictated the following letter to Lord Arundel, from which we learn the circumstances under which he had repaired to his Lordship's house:—"My very good Lord, I was likely to have had the fortune of Caius Plinius the Elder, who lost his life by trying an experiment about the burning of the mount Vesuvius; for I was also desirous to try an experiment or two, touching the conservation and induration of bodies. As for the experiment itself, it succeeded excellently well; but in the journey, between London and Highgate, I was taken with such a fit of casting [vomiting], as I knew not whether it were the stone, or some surfeit, or cold, or indeed a touch of them all three. But when I came to your lordship's house, I was not able to go back, and therefore was forced to take up my lodging here, where your housekeeper is very careful and diligent about me; which I assure myself your lordship will not only pardon towards him, but think the better of him for it. For indeed your lordship's house was happy to me; and I kiss your noble hands for the welcome which I am sure you give me to

it. I know how unfit it is for me to write to your lordship with any other hand than mine own; but, by my troth, my fingers are so disjointed with this fit of sickness, that I cannot steadily hold a pen." It is evident, however, that Bacon did not think he was dying when this was written. John Aubrey relates, that when Bacon was attacked by his illness he was accompanied by Dr. Witherborne, the King's Physician, and that, seeing snow on the ground as they approached Highgate, coming from London, they alighted out of the coach and went into a poor woman's house at the foot of Highgate Hill, where they bought a hen, and stuffed the body with snow, Bacon assisting in the operation with his own hands. Aubrey further states that the bed into which he was put at Lord Arundel's house was damp, and had not been slept in for a year before. He breathed his last in the arms of his friend, and relation by marriage, Sir Julius Caesar, the Master of the Robes, who had been sent for at the commencement of his illness.

PART III.

BACON'S LEGAL, POLITICAL, AND EPIS- TOLARY WRITINGS.

BACON'S enduring fame is that of a moralist, an historian, and a philosopher; but in his own day he was chiefly known as a lawyer and a politician. Ethics, theology, history, and philosophy were but the studies and pursuits of his leisure; his professional occupations were law and politics. Nor have his legal and political writings by any means yet lost all their interest and value. Here too we have his fertile, ingenious, abundant mind everywhere at work, and the same rich eloquence gilding whatever it touches with sunshine.

A very summary account, however, of the pieces composing this division of our author's works will suffice for our present purpose.

The tract entitled 'The Elements of the Common Law of England' has been already mentioned.* It is introduced by a Dedication to Elizabeth dated 1596, and also by a Preface; but both these addresses, as has been already remarked, refer only to the First Part of the work, which is entitled 'A Collection of some of the principal Rules and Maxims of the Common Law, with their Latitude and Extent.' The Second Part, entitled 'The Use of the Common Law for Preservation of our Persons, Goods, and Good Names, according to the Practice of the Law and Customs of this Land,'

* See *ante*, Vol. I. p. 17.

appears to have been subsequently compiled. The two Parts were printed for the first time together, in 4to., at London, in 1630. In the Dedication of 'The Maxims' Bacon speaks of the collection as having been suggested both by what had been published by the Lord Chancellor, speaking for the queen, in full parliament in the year 1593, and much more by what he had himself been vouchsafed to understand from her majesty, "imparting [importing?]," he says, "a purpose for these many years infused into your majesty's breast to enter into a general amendment of the state of your laws, and to reduce them to more brevity and certainty, that the great hollowness and unsafety in assurances of lands and goods may be strengthened, the snaring penalties that lie upon many subjects removed, the execution of many profitable laws revived, the judge better directed in his sentence, the counsellor better warranted in his counsel, the student eased in his reading, the contentious suitor, that seeketh but vexation, disarmed, and the honest suitor, that seeketh but to obtain his right, relieved." In giving an account of his work in the Preface he says:—"I hold every man a debtor to his profession; from the which as men of course do seek to receive countenance and profit, so ought they of duty to endeavour themselves, by way of amends, to be a help and ornament thereunto. . . . Having therefore from the beginning come to the study of the laws of this realm with a mind and desire no less, if I could attain unto it, that the same laws should be the better by my industry than that myself should be the better by the knowledge of them, I do not find that by mine own travail, without the help of authority, I can in any kind prefer so profitable an addition unto that science as by collecting the rules and grounds dispersed throughout the body of the same laws." The collection comprehends twenty-five general maxims or rules, which are illustrated by explanations and short examples. No rules, it is stated, have been omitted because they are ordinary or vulgar; those that concur with the civil or Roman law have been set down in the same words that

the civilians use ; no certain method or order has been observed, because (a favourite principle with Bacon) " this delivering of knowledge in distinct and disjointed aphorisms doth leave the wit of man more free to turn and to toss, and to make use of that which is so delivered to more several purposes and applications ;" the rules are set down only in Latin, without regard to grace or ornament of expression, or to anything in style except the preservation of the proper terms and technical language of the law ; and no references to the books are given ; " for although," says Bacon, " the meanness of mine own person may now at first extenuate the authority of this collection, and that every man is adventurous to control ; yet surely, according to Gamaliel's reason, if it be of weight, time will settle and authorize it ; if it be light and weak, time will reprove it. So that, to conclude, you have here a work without any glory of affected novelty, or of method, or of language, or of quotations and authorities, dedicated only to use, and submitted only to the censure of the learned, and chiefly of time." What chiefly, however, makes the maxims profitable and instructive, he conceives, is the examples with which he has accompanied them. Finally, he adds, " Though I have thus, with as much discretion and foresight as I could, ordered this work, and, as I may say, without all colours or shows, husbanded it best to profit ; yet nevertheless, not wholly trusting to mine own judgment, having collected three hundred of them, I thought good, before I brought them all into form, to publish some few, that, by the taste of other men's opinions in this first, I might receive either approbation in mine own course or better advice for the altering of the other which remain ; for it is great reason that that which is intended to the profit of others should be guided by the conceits of others." The Second Part, on the Use of the Law, is a compendious account of the practice and administration of the English law both in criminal and civil cases. It appears, however, to be unfinished. The use of the law is defined as consisting " principally in these three things: 1. To se-

cure men's persons from death and violence; 2. To dispose the property of their goods and lands; 3. For preservation of their good names from shame and infamy." But the last of these three heads is not entered upon. The tract is very clearly written, and is curious for the details it contains respecting some now obsolete institutions and forms.

Another law tract is entitled 'The learned Reading of Mr. Francis Bacon, one of her Majesty's Counsel at Law, upon the Statute of Uses; being his double Reading to the Hon. Society of Gray's Inn, 42 Eliz." (1600). This was not printed till the year 1642. "When this piece was first published," says Blackbourne, "the state of printing resembled the state of monarchy, both being at a low ebb; and none of our noble author's works have been more miserably racked and disjointed than this before us. I have been fortunate in procuring a corrected copy of the whole; and, farther still, a second and much better copy in MS., which I take, upon comparison of hands, to be the character of our author's clerk or amanuensis." Blackbourne's MS., however, only contained part of the tract; but the emendations it afforded were so important, as to render, he states, the work in a manner new. The Statute of Uses is the 27 Hen. VIII. c. 10; "a law," says Bacon, "whereupon the inheritances of this realm are tossed at this day, like a ship upon the sea, in such sort, that it is hard to say which bark will sink, and which will get to the haven; that is to say, what assurances will stand good, and what will not." This Reading upon the Statute of Uses is considered to be creditable to Bacon's legal learning.

The 'Account of the lately erected Service called the Office of Compositions for Alienations,' first printed in the Appendix to the Third Volume of what is called Mallet's edition of Bacon's Works, 3 vols. folio, 1753, from a MS. in the Library of the Inner Temple, and described as having been "written (about the close of 1598) by Mr. Francis Bacon"—a performance in admiration of which Bacon's biographers have been particularly enthusiastic, and which has kept its place

among his works down to the present day—is certainly not his at all, but was most probably compiled by William Lambard, the author of the ‘Perambulation of the County of Kent,’ the ‘Archæionomia,’ and other works. It has not a trace of Bacon’s manner.

‘The Arguments in Law, of Sir Francis Bacon, Knight, the King’s Solicitor-General, in certain great and difficult Cases,’ were first published by Blackbourne in his Edition of Bacon’s Works, 1730. “The world,” says Blackbourne, “is indebted for this treasure to the humanity of a worthy man, Mr. Thomas Richardson, apothecary, of Aldersgate Street, who is a citizen of the world, a credit to his employ, and a blessing to his neighbourhood. Mr. Stephens, knowing these arguments to be authentic, and the unquestionable writings of our noble author, was so obliging as to peruse and examine them sheet by sheet, as the press delivered them; and I can vouch they are printed to a degree of nicety from the fair original.” The cases are, 1. The Case of Impeachment of Waste, argued before all the Judges in the Exchequer Chamber; 2. Low’s Case of Tenures, in the King’s Bench; 3. The Case of Revocation of Uses, in the King’s Bench; 4. The Jurisdiction of the Marches. The arguments must have been held between June, 1607, and October, 1613, the period of Bacon’s tenure of the office of Solicitor-General. They had been intended for publication by Bacon himself, as appears from a short but characteristic Dedication to his “Loving Friends and Fellows, the Readers, Ancients, Utter-Barristers, and Students of Gray’s Inn, in which, after observing that the publication of such pleadings has been usual both in ancient times and in other modern nations, he proceeds: “I know no reason why the same should not be brought in use by the professors of our law for their arguments in principal cases. And this I think the more necessary, because the compendious form of reporting resolutions, with the substance of the reasons, lately used by Sir Edward Coke, Lord Chief Justice of the King’s Bench, doth not delineate or trace out to the young practisers of the law a method and form

of argument for them to imitate. It is true I could have wished some abler person had begun; but it is a kind of order sometimes to begin with the meanest. Nevertheless, thus much I may say with modesty, that these arguments which I have set forth, most of them, are upon subjects not vulgar; and therewithal, in regard of the commixture which the course of my life hath made of law with other studies, they may have the more variety, and perhaps the more depth of reason: for the reasons of municipal laws, severed from the grounds of nature, manners, and policy, are like wall-flowers, which, though they grow high upon the crests of states, yet they have no deep root. Besides, in all public services, I ever valued my reputation more than my pains; and, therefore, in weighty causes I always used extraordinary diligence. . . . This work I knew not to whom to dedicate, rather than to the Society of Gray's Inn, the place whence my father was called to the highest place of justice, and where myself have lived and had my procedure so far as, by his majesty's rare, if not singular, grace, to be of both his councils." This must have been written, apparently, not only after Bacon had become Attorney-General on the removal of Coke to the King's Bench, in October, 1613, but after he had been made a privy-counsellor in June, 1616. By being of both councils he means, apparently, the having been made a privy-counsellor at the same time that he held the office of attorney-general, or chief of the King's counsel learned in the law; according to what he says in the beginning of his 'Proposition touching the amendment of the Laws,' where he speaks of such a union of offices or honours as more than what had been "these hundred years before."*

The remaining pieces that come under the present head, with the dates of the first publication of each, as far as we have been able to ascertain them, are as follow:—
 'A draught of an Act against an Usurious Shift of Gain

* In Vol. I. p. 113, misprinted "three hundred years before."

in delivering Commodities instead of Money,' in the Second Part of the *Resuscitatio* (1670); 'A Preparation toward the Union of the Laws of England and Scotland,' addressed to the King, in Stephens's Second Collection (1734); 'An Explanation what manner of persons those should be that are to execute the power or ordinance of the King's Prerogative' (of doubtful authenticity), with the 'Essay of a King,' in 1642, and again in the 'Remains of the Right Honourable Francis Lord Verulam,' &c., 1648, and 'The Mirror of State and Eloquence' (the same with the *Remains*), 1656;* 'The Office of Constables, Original and Use of Courts Leet, Sheriff's Turn, &c., with the Answers to the Questions propounded by Sir Alexander Hay, Knt., touching the Office of Constables; A.D. 1608,' when first printed we have not been able to discover; 'The Argument of Sir Francis Bacon, Knt., His Majesty's Solicitor-General, in the Case of the Post-Nati of Scotland, in the Exchequer Chamber, before the Lord Chancellor and all the Judges of England,' separately, in 4to., Lon. 1641, and afterwards in the Second Part of the *Resuscitatio* (1670); 'A Proposition to his Majesty, by Sir Francis Bacon, Knt., His Majesty's Attorney-General and one of his Privy Council, touching the Compiling and Amendment of the Laws of England,' written between June, 1616, and March, 1617,† in the First Part of the *Resuscitatio* (1657); 'An Offer to King James of a Digest to be made of the Laws of England,' in 'Certain Miscellany Works of the Right Honourable Francis Lord Verulam, &c., published by William Rawley, D.D.' 1629; 'The Judicial Charge of Sir Francis Bacon, Knt., the King's Solicitor, upon the Commission of Oyer and Terminer held for the Verge of the Court,' delivered in 1611, 4to. Lon. 1662, and again in the Second Part of the *Resuscitatio* (1670); 'A Charge delivered by Sir Francis Bacon, Knight, the King's Solicitor-General, at the arraignment of the Lord Sanquhar in the King's Bench at Westminster'

* See *ante*, Vol. I. p. 86, † See *ante*, Vol. I. p. 115.

(29th June, 1612, for the murder of John Turner, of which he was found guilty and for which he suffered death), in the Second Part of the *Resuscitatio* (1670); 'The Charge of Sir Francis Bacon, Knight, the King's Attorney-General, touching Duels, upon an information in the Star-Chamber against Priest and Wright; with the Decree of the Star-Chamber in the same cause' (26th January, 1614), 4to. Lon. 1614, and in the Second Part of the *Resuscitatio* (1670); 'The Charge of Sir Francis Bacon, Knight, the King's Attorney General, against William Talbot, a Counsellor at Law, of Ireland, upon an information in the Star-Chamber, *ore tenus*, for a writing under his hand, whereby the said William Talbot, being demanded whether the doctrine of Suarez touching the deposing and killing of Kings excommunicated were true or no, he answered that he referred himself unto that which the Catholic Roman Church should determine thereof,' delivered in Hilary Term, 1613, in the First Part of the *Resuscitatio* (1657); 'A Charge given by Sir Francis Bacon, Knight, His Majesty's Attorney General, against Mr. Oliver St. John, for scandalizing and traducing, in the public sessions, Letters sent from the Lords of the Council touching the Benevolence,' in the First Part of the *Resuscitatio* (1657): 'The Charge of Owen, indicted for High Treason, in the King's Bench, by Sir Francis Bacon, Knight, his Majesty's Attorney General,' (in 1615, for affirming, conditionally, that if the King were excommunicated, it were lawful to kill him), in the First Part of the *Resuscitatio* (1657); 'The Charge of Sir Francis Bacon, Knight, the King's Attorney General, against Mr. Lumsden, Sir John Wentworth, and Sir John Holmes, for Scandal and traducing the King's justice in the proceedings against Weston in the Star-Chamber, November, 1615' (Weston was one of the persons implicated in the poisoning of Sir Thomas Overbury), in the First Part of the *Resuscitatio* (1657); 'The Charge of Sir Francis Bacon, Knight, His Majesty's Attorney General, against Frances Countess of Somerset, intended to have been spoken by him at her

Arraignment, on Friday, May 24, 1616, in case she had pleaded Not Guilty' (for the murder of Sir Thomas Overbury), in Birch's 'Letters, Speeches, Charges, Advices, &c., of Francis Bacon, Lord Viscount St. Alban,' 8vo., Lon. 1763; 'The Charges, by Way of Evidence, by Sir Francis Bacon, Knight, His Majesty's Attorney General, before the Lord High Steward and the Peers, against Frances Countess of Somerset, and against Robert Earl of Somerset, concerning the poisoning of Sir Thomas Overbury,' very incorrectly in 'A True and Historical Relation of the Poisoning of Sir Thomas Overbury,' 12mo. Lon. 1651, first correctly by Tenison in the *Baconiana* (1679): 'The Effect of that which was spoken by the Lord Keeper of the Great Seal of England, at the taking of his place in Chancery, in performance of the Charge his Majesty had given him when he received the Seal, May 7, 1617,' in the First Part of the *Resuscitatio* (1657); 'The Speech which was used by the Lord Keeper of the Great Seal in the Star-Chamber before the Summer Circuits, the King being then in Scotland, 1617,' in the First Part of the *Resuscitatio* (1657); 'The Speech used by Sir Francis Bacon, Lord Keeper of the Great Seal of England, to Sir William Jones, upon his calling to be Lord Chief Justice of Ireland, 1617,' in the First Part of the *Resuscitatio* (1657); 'The Lord Keeper's Speech in the Exchequer to Sir John Denham, when he was called to be one of the Barons of the Exchequer, in 1617,' in the First Part of the *Resuscitatio* (1657); 'His Lordship's Speech in the Common Pleas to Justice Hutton, when he was called to be one of the Judges of the Common Pleas,' in the First Part of the *Resuscitatio* (1657); and 'Ordinances made by the Lord Chancellor Bacon, for the Better and more regular Administration of Justice in the Chancery, to be daily observed, saving the prerogative of the Court,' separately in 4to. in 1642, but much more correctly in the Fourth Volume of Blackbourne's edition of Bacon's Works (1730). In the latter editions of the collected Works are added, 'The Passages in Parliament against Francis Viscount St. Al-

ban, Lord Chancellor of England, Anno Domini 1620 and 1621.'

Of Bacon's Political Writings the piece which is placed first in the common editions of his collected Works is a tract entitled 'Of the State of Europe,' originally printed in Stephens's Second Collection. (1734). Mallet describes it as having been written by Bacon in 1580; "as I have discovered," he adds, "by a circumstance mentioned in it. He says that Henry III. of France was then 30 years old: now that King began his reign in 1574, at the age of 24 years." This is a somewhat simple piece of self-gratulation in Mallet; if he had read on he would have made many more such discoveries, but he would also have found that they would not avail him much; for, although the ages of most of the other reigning sovereigns are mentioned as well as that of Henry III. of France, they are too incorrectly given to be of any use. Thus, the Pope, Gregory XIII., who is stated to have been "of the age of 70 years," was 78 in 1580; Philip II. of Spain, described as "about 60 years of age," was then only 53; and so in other cases. We would not infer from these discrepancies, with the writer of the Life of Bacon in the *Biographia Britannica*, that the tract was written at different periods; it evidently describes one state of things, and its meaning and purpose are lost if we suppose otherwise. Its inaccuracies upon a point of little or no real importance, and as to which exact information was not readily attainable, are easily accounted for. But the date of its composition is sufficiently indicated by the mention of some facts of another description as to which the writer could not be mistaken. For instance, in one place he says:—"At this present the King [of France] is about to restore Don Antonio, King of Portugal, whereto are great levies and preparation;" and again:—"D. Antonio, elect King of Portugal, thrust out by the King of Spain, is now in France, where he hath levied soldiers, whereof part are embarked, &c." Now this expedition of Don Antonio

from France under the auspices of Henry III., or rather of Catherine de' Medici, was fitted out in the latter part of the year 1582. It was at that time, therefore, that the account was drawn up. It is a comprehensive and luminous sketch of the political condition of Europe, evincing a remarkable judgment in the selection of the particulars noted, as well as great extent and minuteness of information, for so young a man as Bacon was at this time. Much of it is still interesting. We will give a specimen from the portion of it relating to the Princes of Italy :—

The great Duke of Tuscany, Francisco de Medici, son to Cosmo, and the third duke of that family and province; of the age of forty years, of disposition severe and sad rather than manly and grave; no princely port or behaviour more than a great justicer: inclined to peace and gathering money. All Tuscany is subject unto him, wherein were divers commonwealths, whereof the chief were Florence, Siena, and Pisa, Prato, and Pistoia saving Lucca, and certain forts on the sea-coast held by the King of Spain.

He retaineth in his service few, and they strangers, to whom he giveth pensions. In all his citadels he hath garrison of Spaniards except at Siena; in housekeeping spendeth little, being as it were in pension, agreeing for so much the year with a citizen of Florence for his diet: he hath a small guard of Swisssers, and when he rideth abroad, a guard of forty light horsemen. The militia of his country amounteth to forty thousand soldiers, to the which he granteth leave to wear their weapons on the holy days and other immunities; besides, he entertaineth certain men of arms, to the which he giveth seven crowns the month. He also maintaineth seven galleys, the which serve under his knights, erected by his father in Pisa, of the order of St. Stephano; of these galleys three go every year in chase.

His common exercise is in distillations and in trying of conclusions, the which he doth exercise in a house called Cassino, in Florence, where he spendeth the most part of the day; giving ear in the mean season to matters of affairs, and conferring with his chief officers. His revenues are esteemed to amount to a million and a half of crowns, of the which, spending half a million, he layeth up yearly one million; but certainly he is the richest prince in all Europe of coin.

The form of his government is absolute, depending only of his will and pleasure, though retaining in many things the ancient offices and show; but those magistrates resolve nothing without his express directions and pleasure. Privy council he useth none, but reposeth most his trust on sound secretaries, and conferreth chiefly with his wife, as his father did with one of his secretaries. For matter of examinations, one Corbolo hath the especial trust; he doth favour the people more than the nobility, because they do bear an old grudge to the gentlemen, and the people are the more in number, without whom the nobility can do nothing. One thing in him giveth great contentment to the subjects, that he vouchsafeth to receive and hear all their petitions himself; and in his absence from Florence, those that have suit do resort to the office, and there exhibit their bill endorsed; whereof within three days absolute answer is returned to them, unless the matter be of great importance, then have they direction how to proceed. He is a great justicer; and for the ease of the people, and to have the better eye over justice, hath built hard by his palace a fair row of houses for all offices together in one place.

Two years sithence he married la Signora Bianca, his concubine, a Venetian of Casa Capelli, whereby he entered straiter amity with the Venetians; with the Pope he hath good intelligence, and some affinity by the marriage of Signor Jacomo, the Pope's son, in Casa Sforza.

To the emperor he is allied, his first wife being the Emperor Maximilian's sister.

With Spain he is in a strait league, and his mother was of the house of Toledo; his brother likewise, D. Pietro, married in the same house. With France he standeth at this present in some misliking.

With Ferrara always at jar, as with all the Dukes of Italy, for the preasence in some controversy.

All his revenues arise of taxes and customs; his domains are very small.

He hath by his first wife one son of the age of four or five years, and four daughters; he hath a base child by this woman, and a base brother, D. Joanni, sixteen years of age, of great expectation.

One of the most remarkable passages is that relating to the Duke of Anjou, recently dismissed from his sutorship for the hand of Elizabeth, but only about to enter upon that scene of his brief government of the

Netherlands which showed what an erroneous estimate of him the world had previously formed :—

Francis, Duke of Anjou and of Brabant, for his calling and quality greatly to be considered as any prince this day living, being second person to the king his brother, and in likelihood to succeed him. There is noted in the disposition of this prince a quiet mildness, giving satisfaction to all men; facility of access, and natural courtesy; understanding and speech great and eloquent; secrecy more than commonly is in the French; from his youth always desirous of action, the which thing has made him always followed and respected: and though hitherto he hath brought to pass no great purpose, having suffered great wants and resistance, both at home and abroad, yet by the intermeddling is grown to good experience, readiness, and judgment, the better thereby able to guide and govern his affairs, both in practice, in treaty, and action. Moreover, the diseased estate of the world doth so concur with this his active forwardness, as it giveth matter to work upon; and he is the only man to be seen of all them in distress or desirous of alteration: a matter of special furtherance to all such as have achieved great things, when they have found matter disposed to receive form.

And there is to be found in no other prince in this part of the world so towards and forward as the Duke, towards whom they in distress may turn their eyes. We do plainly see in the most countries of Christendom so unsound and shaken an estate, as desireth the help of some great person, to set together and join again the pieces asunder and out of joint; wherefore the presumption is great that if this prince continue this his course, he is likely to become a mighty potentate: for one enterprise failing, other will be offered, and still men evil at ease and desirous of a head and captain, will run to him that is fittest to receive them; besides, the French, desirous to shake off the civil wars, must needs attempt somewhat abroad. This Duke first had intelligence with the Count Ludovic in King Charles's days, and an enterprise to escape from the court, and in this king's time joined with them of the religion and malcontents; after was carried against them; seeketh the marriage with her Majesty, so mighty a princess, as it were to marry might with his activity.

This passage, by the by, confirms what we have said as to the time when the paper was written; for the

Duke of Anjou did not become Duke of Brabant till the latter part of the year 1582.

The panegyric on Elizabeth entitled 'Mr. Bacon's Discourse in the Praise of his Sovereign,' first published in Stephens's Second Collection (1734), has been already noticed among the Historical Writings.*

The piece that stands next in order is 'Certain Observations upon a Libel published this present year, 1592, entitled A Declaration of the True Causes of the Great Troubles pre-supposed to be intended against the realm of England.' This is an elaborate tract, filling 48 folio pages of the First Part of the *Resuscitatio*, in which it seems to have been for the first time printed; at least the editors make no mention of any earlier impression, although it had evidently been written with the design of immediate publication.† The libel, or pamphlet, to which it is a reply, is supposed to have been one of the productions of the famous Parsons, the Jesuit. It has all Bacon's characteristic ingenuity of reasoning and power of style, as will sufficiently appear from the following extracts:—

It were just and honourable for princes, being in wars together, that howsoever they prosecute their quarrels and debates by arms and acts of hostility, yea, though the wars be such, as they pretend the utter ruin and overthrow of the forces and states one of another, yet they so limit their passions as they preserve two things sacred and inviolable, that is, the life and good name each of other. For the wars are no massacres and confusions, but they are the highest trials of right, when princes and states that acknowledge no superior upon earth, shall put themselves upon the justice of God for the deciding of their controversies, by such success as it shall please him to give on either side; and as, in the process of particular pleas between private men, all things ought to be ordered by the rules of civil laws, so, in the proceedings of the war, nothing ought to be done against the law of nations or the law of honour: which laws have ever pronounced those two sorts of men, the one conspirators against

* See Vol. I. p. 215.

† It is incorrectly spoken of, therefore, in Vol. I. p. 16, as "Bacon's first publication."

the persons of princes, the other libellers against their good fame, to be such enemies of common society as are not to be cherished, no, not by enemies. For, in the example of times which were less corrupted, we find that when in the greatest heats and extremities of wars, there have been made offers of murderous and traitorous attempts against the person of a prince to the enemy, they have been not only rejected, but also revealed; and, in like manner, when dishonourable mention hath been made of a prince before an enemy prince, by some that have thought therein to please his humour, he hath showed himself, contrarywise, utterly distasted therewith, and been ready to contest for the honour of an enemy.

The benefits of Almighty God upon this land since the time that, in his singular providence, he led, as it were, by the hand and placed in the kingdom his servant, our Queen Elizabeth, are such as, not in boasting or in confidence of ourselves, but in praise of his holy name, are worthy to be both considered and confessed, yea, and registered in perpetual memory; notwithstanding, I mean not, after the manner of a panegyric, to extol the present time. It shall suffice only, that those men that through the gall and bitterness of their own heart have lost their taste and judgment, and would deprive God of his glory, and us of our senses, in affirming our condition to be miserable, and full of tokens of the wrath and indignation of God, be reproved.

If then it be true that "*nemo est miser aut felix, nisi comparatus*," whether we shall (keeping ourselves within the compass of our own island) look into the memories of times past, or, at this present time, take a view of other states abroad in Europe: we shall find that we need not give place to the happiness, either of ancestors or neighbours; for if a man weigh well all the parts of state and religion, laws, administration of justice, policy of government, manners, civility, learning, and liberal sciences, industry and manual arts, arms and provisions of wars for sea and land, treasure, traffic, improvement of the soil, population, honour, and reputation, it will appear that, taking one part with another, the state of this nation was never more flourishing.

Now for her Majesty, we will first speak of the blessing of continuance as that which wanted in the happiest of these kings, and is not only a great favour of God unto the prince, but also a singular benefit unto the people; for that sentence of the Scripture, "*Misera natio, cum multi sunt principes ejus*,"

is interpreted not only to extend to divisions and distractions in government, but also to frequent changes in succession, considering that the change of a prince bringeth in many charges which are harsh and unpleasant to a great part of the subjects. It appeareth then, that of the line of five hundred and fourscore years and more, containing the number of 22 kings, God hath already prolonged her Majesty's reign to exceed sixteen of the said two-and-twenty, and, by the end of this present year (which God prosper), she shall attain to be equal with two more, during which time there have deceased four emperors, as many French kings, twice so many bishops of Rome. Yea, every state in Christendom, except Spain, have received sundry successions: and, for the King of Spain, he is waxed so infirm, and thereby so retired, as the report of his death serveth for every year's news; whereas her Majesty (thanks be given to God), being nothing decayed in vigour of health and strength, was never more able to supply and sustain the weight of her affairs, and is, as far as standeth with the dignity of her Majesty's royal state, continually to be seen, to the great comfort and heart-ease of her people.

The fourth blessing is plenty and abundance; and first, for grain and all victuals, there cannot be more evident proof of the plenty than this, that, whereas England was wont to be fed by other countries from the east, it sufficeth now to feed other countries, so as we do many times transport and serve sundry foreign countries; and yet there was never the like multitude of people to eat it within the realm. Another evident proof thereof may be, that the good yields of corn which have been, together with some toleration of vent, hath of late time invited and enticed men to break up more ground and to convert it to tillage, than all the penal laws for that purpose made and enacted could ever by compulsion effect. A third proof may be, that the prices of grain and victual were never of late years more reasonable. Now for arguments of the great wealth, in all other respects, let the points following be considered.

There was never the like number of fair and stately houses, as have been built and set up from the ground since her Majesty's reign, inasmuch that there have been reckoned in one shire that is not great, to the number of thirty-three, which have been all new built within that time, and whereof the meanest was never built for two thousand pounds.

There were never the like pleasures, of goodly gardens, and orchards, walks, pools, and parks as do adorn almost every mansion-house.

There was never the like number of beautiful and costly tombs and monuments, which are erected in sundry churches in honourable memory of the dead.

There was never the like quantity of plate, jewels, sumptuous moveables, and stuff as is now within the realm.

There was never the like quantity of waste and unprofitable ground inned, reclaimed, and improved.

There was never the like husbanding of all sorts of grounds, by fencing, manuring, and all kinds of good husbandry.

The towns were never better built nor peopled, nor the principal fairs and markets never better customed nor frequented.

The commodities and ease of rivers cut by hand, and brought into a new channel, of piers that have been built, of waters that have been forced and brought against the ground, were never so many.

There was never so many excellent artificers, nor so many new handicrafts used and exercised, nor new commodities made within the realm, sugar, paper, glass, copper, divers silks, and the like.

There was never such complete and honourable provision of horse, armour, weapons, ordnance of the war.

Now, to pass from the comparison of time to the comparison of place, we may find in the states abroad cause of pity and compassion in some, but of envy or emulation in none: our condition being, by the good favour of God, not inferior to any.

The kingdom of France, which, by reason of the seat of the empire of the west, was wont to have the precedence of the kingdoms of Europe, is now fallen into those calamities that, as the prophet saith, "from the crown of the head to the sole of the foot, there is no whole place." The divisions are so many and so intricate, of Protestants and Catholics, royalists and leaguers, Bourbonists and Lorrainists, patriots and Spanish; as it seemeth God hath some great work to bring to pass upon that nation, yea, the nobility divided from the third estate, and the towns from the field. All which miseries, truly to speak, have been wrought by Spain and the Spanish faction.

The Low Countries, which were, within the age of a young man, the richest, the best peopled, and the best built plots of Europe, are in such estate as a country is like to be in, that hath been the seat of thirty years' war; and, although the sea-provinces be rather increased in wealth and shipping than

otherwise, yet they cannot but mourn for their distraction from the rest of their body.

The kingdom of Portugal which, of late times, through their merchandizing and places in the East Indies, was grown to be an opulent kingdom, is now at the last, after the unfortunate journey of Africk, in that state as a country is like to be that is reduced under a foreigner by conquest, and such a foreigner as hath his competitor in title, being a natural Portugal, and no stranger, and having been once in possession yet in life, whereby his jealousy must necessarily be increased, and through his jealousy their oppression, which is apparent by the carrying of many noble families out of their natural countries to live in exile, and by putting to death a great number of noblemen naturally born to have been principal governors of their countries. These are three afflicted parts of Christendom; the rest of the states enjoy either prosperity or tolerable condition.

The kingdom of Scotland, though at this present, by the good regiment and wise proceeding of the king, they enjoy good quiet, yet since our peace, it hath passed through no small troubles, and remaineth full of boiling and swelling humours, but like, by the maturity of the said king, every day increasing to be repressed.

The kingdom of Poland is newly recovered out of great wars about an ambiguous election; and besides, is a state of that composition, that their king being elective, they do commonly choose rather a stranger than one of their own country. A great exception to the flourishing estate of any kingdom.

The kingdom of Swedeland, besides their foreign wars upon their confines, the Muscovites and the Danes, hath been also subject to divers intestine tumults and mutations, as their stories do record.

The kingdom of Denmark hath had good times, especially by the good government of the late king, who maintained the profession of the Gospel, but yet greatly giveth place to the kingdom of England in climate, wealth, fertility, and many other points, both of honour and strength.

The estates of Italy, which are not under the dominion of Spain, have had peace equal in continuance with ours, except in regard of that which hath passed between them and the Turk, which hath sorted to their honour and commendation; but yet they are so bridled and overawed by the Spaniard, that possesseth the two principal members thereof, and that in

the two extreme parts, as they be like quilllets of freehold, being intermixed in the midst of a great honour or lordship : so as their quiet is intermingled, not with jealousy alone, but with restraint.

The states of Germany have had, for the most part, peaceable times : but yet they yield to the state of England, not only in the great honour of a great kingdom (they being of a mean style and dignity), but also in many other respects, both of wealth and policy.

The state of Savoy having been, in the old Duke's time, governed in good prosperity, hath since, notwithstanding their new great alliance with Spain, whereupon they waxed insolent to design to snatch up some piece of France : after the dishonourable repulse from the siege of Geneva, been often distressed by a particular gentleman of Dauphiny : and at this present day the Duke feeleth, even in Piedmont beyond the mountains, the weight of the same enemy, who hath lately shut up his gates and common entries between Savoy and Piedmont.

So as hitherto I do not see but that we are as much bound to the mercies of God as any other nation, considering that the fires of dissension and oppression in some parts of Christendom may serve us for lights to show us our happiness : and the good estates of other places, which we do congratulate with them for, is such nevertheless as doth not stain and exceed ours, but rather doth still leave somewhat wherein we may acknowledge an ordinary benediction of God.

Lastly, we do not much emulate the greatness and glory of the Spaniards, who, having not only excluded the purity of religion, but also fortified against it by their device of the inquisition, which is a bulwark against the entrance of the truth of God ; having, in recompense of their new purchase of Portugal, lost a great part of their ancient patrimonies of the low countries (being of far greater commodity and value), or, at the least, holding part thereof in such sort as most of their other revenues are spent there upon their own ; having lately, with much difficulty, rather smoothed and skinned over, than healed and extinguished the commotions of Arragon ; having rather sowed troubles in France, than reaped assured fruit thereof unto themselves ; having, from the attempt of England, received scorn and disreputation, being at this time with the states of Italy rather suspected than either loved or feared ; having, in Germany and elsewhere, rather much prac-

tice than any sound intelligence or amity; having no such clear succession as they need object and reproach, the uncertainty thereof unto another nation, have, in the end, won a reputation rather of ambition than justice, and in the pursuit of their ambition, rather of much enterprising than of fortunate achieving, and in their enterprising rather of doing things by treasure and expense than by forces and valour.

And as for those which we call Brownists, being, when they were at the most, a very small number of very silly and base people here and there, in corners, dispersed; they are now (thanks be to God) by the good remedies that have been used, suppressed and worn out, so as there is scarce any news of them. Neither had they been much known at all had not Brown, their leader, written a pamphlet, wherein, as it came into his head, he inveighed more against logic and rhetoric than against the state of the church (which writing was much read); and had not also one Barrow (being a gentleman of a good house, but one that lived in London at ordinaries, and there learned to argue in table-talk, and so was very much known in the city and abroad) made a leap from a vain and libertine youth to a preciseness in the highest degree, the strangeness of which alteration made him very much spoken of, the matter might long before have breathed out. And here I note an honesty and discretion in the libeller which I note no where else; in that he did forbear to lay to our charge the sect of the Family of Love; for about twelve years since there was creeping, in some secret places of the realm indeed, a very great heresy derived from the Dutch, and named as before was said; which since, by the good blessing of God and by the good strength of our church is banished and extinct. But so much we see that the diseases, wherewith our church hath been visited, whatsoever these men say, have either not been malign and dangerous, or else they have been as blisters in some small ignoble part of the body, which have soon after fallen and gone away. For such also was the phrenetical and faustical (for I mean not to determine it) attempt of Hackett, who must needs have been thought a very dangerous heretic that could never get but two disciples, and those, as it should seem, perished in their brain; and a dangerous commotioner that in so great and populous a city as London is, could draw but those same two fellows, whom the people rather laughed at, as a May-game, than took any heed of what they did or said; so as it was very true that an honest

poor woman said, when she saw Hackett, out of a window, pass to his execution : said she to herself, "It was foretold that, in the latter days, there should come those that have deceived many ; but, in faith, thou hast deceived but a few."

But, nevertheless, to follow this man in his own steps : first, concerning the nobility ; it is true that there have been in ages past noblemen (as I take it) both of greater possessions and of greater command and sway than any are at this day. One reason why the possessions are less, I conceive to be because certain sumptuous veins and humours of expense (as apparel, gaming, maintaining a kind of followers, and the like) do reign more than they did in times past. Another reason is, because noblemen now-a-days do deal better with their younger sons than they were accustomed to do heretofore, whereby the principal house receiveth many abatements. Touching the command, which is not indeed so great as it hath been, I take it rather to be a commendation of the time than otherwise : for men were wont factiously to depend upon noblemen, whereof ensued many partialities and divisions, besides much interruption of justice, while the great ones did seek to bear out those that did depend upon them. So, as the kings of this realm finding long since that kind of commandment in noblemen unsafe unto their crown, and inconvenient unto their people, thought meet to restrain the same by provision of laws, whereupon grew the Statute of Retainers ; so as men now depend upon the prince and the laws and upon no other : a matter which hath also a congruity with the nature of the time, as may be seen in other countries : namely, in Spain, where the *grandees* are nothing so potent and so absolute as they have been in times past ; but otherwise, it may be truly affirmed that the rights and pre-eminences of the nobility were never more duly and exactly preserved unto them than they have been in her Majesty's times ; the precedence of knights given to the younger sons of barons : no subpoenas awarded against the nobility out of the Chancery, but letters : no answer upon oath, but upon honour ; besides a number of other privileges in Parliament, court, and country. So, likewise for the countenance of her Majesty and the State, in lieutenantancies, commissions, offices, and the like, there was never a more honourable and graceful regard had of the nobility ; neither was there ever a more faithful remembrancer and exacter of all these particular pre-eminences unto them ; nor a more diligent searcher and register of their pedigrees, alliances, and all memorials of honour

than that man whom he chargeth to have overthrown the nobility, because a few of them, by immoderate expense are decayed, according to the humour of the time, which he hath not been able to resist, no not in his own house. And as for attainders, there have been in thirty-five years but five of any of the nobility, whereof but two came to execution; and one of them was accompanied with restitution of blood in the children: yea, all of them, except Westmorland, were such as, whether it were by favour of law or government, their heirs have, or are like to have, a great part of their possession; and so much for the nobility.

The states, then, which answered to these two [Spain and England] now were Macedon and Athens. Consider, therefore, the resemblance between the two Philips of Macedon and Spain. He of Macedon aspired to the monarchy of Greece, as he of Spain doth of Europe, but more apparently than the first, because that design was discovered in his father, Charles the Fifth, and so left him by descent; whereas, Philip of Macedon was the first of the kings of that nation which fixed so great conceits in his breast. The course which this king of Macedon held was not so much by great armies and invasions (though these wanted not when the case required), but by practice, by sowing of factions in states, and by obliging sundry particular persons of greatness. The state of opposition against his ambitious proceedings was only the state of Athens, as now is the state of England against Spain; for Lacedemon and Thebes were both low, as France is now, and the rest of the states of Greece were, in power and territories, far inferior. The people of Athens were exceedingly affected to peace and weary of expense. But the point which I chiefly make the comparison was that of the orators, which were as counsellors to a popular state: such as were sharpest-sighted and looked deepest into the projects and spreading of the Macedonians (doubting still that the fire, after it licked up the neighbour states, and made itself opportunity to pass, would at last take hold of the dominions of Athens with so great advantages as they should not be able to remedy it) were ever charged, both by the declarations of the king of Macedon, and by the imputation of such Athenians as were corrupted, to be of his faction, as the kindlers of troubles and disturbers of the peace and leagues; but as that party was, in Athens, too mighty, so as it discountenanced the true counsels of the orators, and so bred the ruin of that state, and accomplished the ends of that Philip.

So it is to be hoped that in a monarchy, where there are commonly better intelligences and resolutions than in a popular state, those plots as they are detected already; so they will be resisted and made frustrate.

But above all the rest, it is a strange fancy in the libeller that he maketh his lordship to be the *primum mobile* in every action without distinction; that to him her Majesty is accomptant of her resolutions; that to him the Earl of Leicester and Mr. Secretary Walsingham, both men of great power and of great wit and understanding, were but as instruments; whereas, it is well known, that as to her Majesty there was never a counsellor of his lordship's long continuance that was so applicable to her Majesty's princely resolutions, endeavouring always after faithful propositions and remonstrances, and these in the best words and the most grateful manner, to rest upon such conclusions as her Majesty in her own wisdom determineth, and them to execute to the best; so far hath he been from contestation or drawing her Majesty into any of his own courses; and as for the forenamed counsellors and others, with whom his lordship hath consorted in her Majesty's service, it is rather true that his lordship, out of the greatness of his experience and wisdom, and out of the coldness of his nature, hath qualified generally all hard and extreme courses, as far as the service of her Majesty, and the safety of the state, and the making himself compatible with those with whom he served, would permit; so far hath his lordship been from inciting others, or running a full course with them in that kind. But yet it is more strange that this man should be so absurdly malicious as he should charge his lordship not only with all actions of state, but also with all the faults and vices of the times, as if curiosity and emulation have bred some controversies in the church; though (thanks be to God) they extend but to outward things: as if wealth and the cunning of wits have brought forth multitudes of suits in law; as if excess in pleasures and in magnificence, joined with the unfaithfulness of servants, and the greediness of monied men, have decayed the patrimony of many noble men and others; that all these and such like conditions of the time should be put on his lordship's account, who hath been, as far as to his place appertaineth, a most religious and wise moderator in church matters, to have unity kept; who with great justice hath dispatched infinite causes in law that have orderly been brought before him; and, for his own example, may say that which few men can

say, but was sometimes said by Cephalus, the Athenian, so much renowned in Plato's works, who, having lived near to the age of an hundred years, and in continual affairs and business, was wont to say of himself, "That he never sued any, neither had been sued by any;" who, by reason of his office, hath preserved many great houses from overthrow by relieving sundry extremities towards such, as in their minority, have been circumvented; and towards all such as his lordship might advise did ever persuade sober and limited expense. Nay, to make proof, further, of his contented manner of life, free from suits and covetousness, as he never sued any man, so did he never raise any rent or put out any tenant of his own, nor ever gave consent to have the like done to any of the queen's tenants; matters singularly to be noted in this age.

But, however, by this fellow, as in a false artificial glass, which is able to make the best face deformed, his lordship's doings be set forth; yet, let his proceedings (which be, indeed, his own) be indifferently weighed and considered, and let men call to mind that his lordship was never a violent and transported man in matters of state, but ever respective and moderate; that he was never man in his particular a breaker of necks, no heavy enemy, but ever placable and mild; that he was never a brewer of holy water in court, no dallier, no abuser, but ever real and certain; that he was never a bearing-man, nor carrier of causes, but ever gave way to justice and course of law; that he was never a glorious, wilful, proud man, but ever civil and familiar, and good to deal withal; that in the course of his service he hath rather sustained the burthen, than sought the fruition of honour or profit, scarcely sparing any time from his cares and travails to the sustentation of his health. That he never had nor sought to have for himself and his children any pennyworth of land or goods that appertained to any attainted of any treason, felony, or otherwise; that he never had or sought any kind of benefit by any forfeiture to her Majesty; that he was never a factious commander of men, as he that intended any ways to besiege her, by bringing in men at his devotion, but was ever a true reporter unto her Majesty of every man's deserts and abilities; that he never took the course to unquiet or offend, no, nor exasperate her Majesty, but to content her mind and mitigate her displeasure; that he ever bare himself reverently and without scandal in matters of religion, and without blemish in his private course of life; let men, I say, without passionate

malice, call to mind these things; and they will think it reason, that though he be not canonized for a saint in Rome, yet he is worthily celebrated as a *pater patriae*, in England; and though he be libelled against by fugitives, yet he is prayed for by a multitude of good subjects; and lastly, though he be envied, whilst he liveth, yet he shall be deeply wanted when he is gone. And assuredly, many princes have had many servants of trust, name, and sufficiency; but where there have been great parts, there hath often wanted temper of affection; where there have been both ability and moderation, there have wanted diligence and love of travail; where all three have been, there have, sometimes, wanted faith and sincerity; where some few have had all these four, yet they have wanted time and experience; but where there is a concurrence of all these, there is no marvel though a prince of judgment be constant in the employment and trust of such a servant.

Page 9 he saith, "That his lordship could neither by the greatness of his beads, creeping to the cross, nor exterior show of devotion before the high altar, find his entrance into high dignity in Queen Mary's time;" all which is a mere fiction at pleasure; for Queen Mary bare that respect unto him, in regard of his constant standing for her title, as she desired to continue his service, the refusal thereof growing from his own part. He enjoyed, nevertheless, all other liberties and favours of the time: save only that it was put into the Queen's head that it was dangerous to permit him to go beyond the sea, because he had a great wit of action, and had served in so principal a place, which, nevertheless, after, with Cardinal Poole, he was suffered to do.

Page *eadem*, he saith: "Sir Nicholas Bacon, that was Lord Keeper, was a man of exceeding crafty wit; which sheweth that this fellow, in his slanders, is no good marksman, but throweth out his words of defaming without all level. For all the world noted Sir Nicholas Bacon to be a man plain, direct, and constant, without all fineness and doubleness, and one that was of the mind that a man, in his private proceedings and estate, and in the proceedings of state, should rest upon the soundness and strength of his own courses and not upon practice, to circumvent others; according to the sentence of Solomon: "*Vir prudens advertit ad Gressus suos, stultus autem divertit ad Dolos*;" insomuch, that the Bishop of Rosse, a subtle and observing man, said of him, "That he could fasten no words upon him, and that it was impossible to come within

him, because he offered no play ;" and the Queen-mother of France, a very politic princess, said of him, " That he should have been of the council of Spain, because he despised the occurrents and rested upon the first plot." So that if he were crafty, it is hard to say who is wise.

He saith, " He hath brought in his second son, Sir Robert Cecil, to be of the council, who hath neither wit nor experience. Which speech is as notorious an untruth as is in all the libel ; for it is confessed by all men that know that gentleman, that he hath one of the rarest and most excellent wits of England, with a singular delivery and application of the same : whether it be to use a continued speech, or to negotiate, or to touch in writing, or to make report, or discreetly to consider of the circumstances, and aptly to draw things to a point ; and all this joined with a very good nature, and a great respect to all men, as is daily more and more revealed. And for his experience it is easy to think that his training and helps hath made it already such, as many that have served long prentis- hood for it, have not attained the like. So as, if that be true, " *Qui beneficium digno dat omnes obligat*," not his father only, but the state, is bound unto her Majesty for the choice and employment of so sufficient and worthy a gentleman.

These men are grown to a singular spirit and faculty in lying and abusing the world ; such, as it seemeth, although they are to purchase a particular dispensation for all other sins, yet they have a dispensation dormant to lie for the Catho- lic cause ; which moveth me to give the reader a taste of their untruths, such as are written and are not merely gross and pal- pable ; desiring him, out of their own writings, when any shall fall into his hands, to increase the roll at least in his own memory.

We retain in our calendars no other holy-days but such as have their memorials in the Scriptures ; and, therefore, in the honour of the Blessed Virgin we only receive the feasts of the Annunciation and the Purification, omitting the other of the Conception and the Nativity, which Nativity was used to be celebrated upon the 8th of September, the vigil whereof hap- pened to be the nativity of our Queen, which, though we keep not holy, yet we use therein certain civil customs of joy and gratulation, as ringing of bells, bonfires, and such like ; and likewise make a memorial of the same day in our calendar, whereupon they have published, that we have expunged the nativity of the Blessed Virgin, and put instead thereof the

nativity of our Queen; and further, that we sing certain hymns unto her, used to be sung unto our Lady.

It happened, that upon some bloodshed in the Church of Paul's, according to the canon law yet with us in force, the said church was interdicted, and so the gates shut up for some few days; whereupon, they published that, because the same church is a place where people used to meet to walk and confer, the Queen's Majesty, after the manner of the ancient tyrants, had forbidden all assemblies and meetings of people together; and for that reason, upon extreme jealousy, did cause Paul's gates to be shut up.

The gate of London, called Lud-Gate, being in decay was pulled down and built anew; and on the one side was set up the image of King Lud and his two sons, who, according to the name, was thought to be the first founder of that gate, and on the other side the image of her Majesty, in whose time it was re-edified; whereupon, they published that her Majesty, after all the images of the saints were long beaten down, had now at last set up her own image upon the principal gate of London to be adored, and that all men were forced to do reverence to it as they passed by, and a watch there placed for that purpose.

Mr. Jewell, the Bishop of Salisbury, who, according to his life, died most godly and patiently, at the point of death used the versicle of the hymn *Te Deum*, "O Lord, in thee have I trusted; let me never be confounded." Whereupon, suppressing the rest, they published that the principal champion of the heretics, in his very last words, cried, he was confounded.

In the Act of Recognition of Primo, whereby the right of the crown is acknowledged by Parliament to be in her Majesty (the like whereof was used in Queen Mary's time), the words of limitation are, "In the Queen's Majesty, and the natural heirs of her body, and her lawful successors." Upon which word *natural* they do maliciously, and indeed villainously gloss; that it was the intention of the Parliament, in a cloud, to convey the crown to any issue of her Majesty's that were illegitimate; whereas, the word *heir* doth, with us, so necessarily and pregnantly import lawfulness; as it had been indecorum and uncivil speaking of the issues of a prince to have expressed it.

They set forth, in the year —, a book, with tables and pictures of the persecutions against Catholics, wherein they

have not only stories of fifty years old to supply their pages, but also taken all the persecutions of the primitive church under the heathen, and translated them to the practice of England; as that of worrying priests, under the skins of bears, by dogs, and the like.

I conclude then that I know not what to make of this excess in avouching untruths, save this: that they may truly chaunt in their quires "Linguam nostram magnificabimus, labia nostra nobis sunt;" and that they that have long ago forsaken the truth of God, which is the touch-stone, must now hold by the whet-stone; and that their ancient pillar of lying wonders being decayed, they must now hold by lying slanders, and make their libels successors to their legend.

There is a remarkable coincidence in design and character between this first political performance of Bacon's and the pamphlet with which Burke, at a somewhat more advanced age, commenced his career as a political writer, his 'Observations on a late publication entitled 'The Present State of the Nation,' published in 1769.

In the modern editions there are attached to these 'Observations' a few sentences entitled 'The First Copy of my Discourse touching the Safety of the Queen's Person,' and two short paragraphs entitled 'The First Fragments of a Discourse, touching Intelligence and the Safety of the Queen's Person.' These additions were first printed in Stephens's Second Collection (1734) from the originals in the Archbishop's Library at Lambeth.

The next piece is also contained in the First Part of the *Resuscitatio*;—'A True Report of the Detestable Treason intended by Doctor Roderigo Lopez, a Physician attending upon the Person of the Queen's Majesty, whom he, for a sum of money promised to be paid him by the King of Spain, did undertake to have destroyed by poison; with certain circumstances both of the plotting and detecting of the said treason; penned during the Queen's life.' Lopez was executed on the 7th of June, 1594; and this account appears to have been drawn up immediately after he had been condemned.

Then follow several pieces relating to the unfortunate Earl of Essex. Bacon's early connexion with Essex,

dating from about the year 1590, and the earl's steady, active, and generous friendship, have been already noticed.* In 1598, on occasion of a dispute which had taken place in the Council between the supporters of the war with Spain and the advocates for a peace, Essex defended his own views in a Letter addressed to Bacon's brother Anthony, under the title of 'An Apology of the Earl of Essex against those who jealously and maliciously tax him to be the hinderer of the peace and quiet of his country.' This Letter, which was first printed in 1603, is republished in the edition of Bacon's Works, in 3 vols. folio, 1753, as having been of his composition; but it is now universally admitted to have been written by Essex himself. Another paper, entitled 'The Proceedings of the Earl of Essex,' first published in Stephens's Second Collection (1734), is little more than a rough sketch of part of an elaborate account, which Bacon was employed to draw up immediately after the trial and execution of Essex, in February, 1601, and which was published by the government in the same year, with the title of 'A Declaration of the Practices and Treasons attempted and committed by Robert late Earl of Essex and his complices, against her Majesty and her Kingdoms; and of the Proceedings, as well at the arraignments and convictions of the said late earl and his adherents, as after; together with the very confessions, and other parts of the evidence, themselves, word for word, taken out of the originals.' The following short passage will sufficiently show the spirit and manner in which Bacon, who had previously appeared at the trial as one of the counsel for the crown, now performed the task he undertook of describing the character and conduct of his deceased friend:—

The most partial will not deny but that Robert late Earl of Essex was, by her Majesty's manifold benefits and graces besides oath and allegiance, as much tied to her Majesty as the subject could be to the sovereign; her Majesty having heaped upon him both dignities, offices, and gifts in such manner as within the circle of twelve years or more there was scarcely a

* See *ante*, Vol. I. pp. 14-16.

year of rest, in which he did not obtain at her Majesty's hands some notable addition, either of honour or profit.

But he, on the other side, making these her Majesty's favours nothing else but wings for his ambition, and looking upon them not as her benefits but as his advantages, supposing that to be his own metal which was but her mark and impression, was so given over by God, who often punisheth ingratitude by ambition, and ambition by treason, and treason by final ruin, as he had long ago plotted it in his heart to become a dangerous supplanter of that seat whereof he ought to have been a principal supporter; in such sort as now every man of common sense may discern not only his last actual and open treasons, but also his former more secret practices and preparations towards those his treasons, and that without any gloss or interpreter, but himself and his own doings.

For first of all the world can now expound why it was that he did aspire, and had almost attained unto a greatness like unto the ancient greatness of the "præfectus prætorio" under the emperors of Rome, to have all men of war to make their sole and particular dependence upon him; that with such jealousy and watchfulness he sought to discountenance any one that might be a competitor to him in any part of that greatness, that with great violence and bitterness he sought to suppress and keep down all the worthiest martial men which did not appropriate their respects and acknowledgements only towards himself. All which did manifestly detect and distinguish, that it was not the reputation of a famous leader in the wars which he sought, as it was construed a great while, but only power and greatness to serve his own ends, considering he never loved virtue nor valour in another but where he thought he should be proprietary and commander of it, as referred to himself.

So likewise those points of popularity which every man took notice and note of, as his affable gestures, open doors, making his table and his bed so popularly places of audience to suitors, denying nothing when he did nothing, feeding many men in their discontentments against the queen and the state, and the like; as they were ever since Absalom's time the forerunners of treasons following, so in him they were either the qualities of a nature disposed to disloyalty, or the beginnings and conceptions of that which afterwards grew to shape and form.

But as it were a vain thing to think to search the roots and first motions of treasons, which are known to none but God that

discerns the heart, and the devil that gives the instigation; so it is more than to be presumed, being made apparent by the evidence of all the events following, that he carried into Ireland a heart corrupted in his allegiance, and pregnant of those or the like treasons which afterwards came to light.

For being a man of a high imagination, and a great promiser to himself as well as to others, he was confident that if he were once the first person in a kingdom, and a sea between the queen's seat and his, and Wales the nearest land from Ireland, and that he had got the flower of the English forces into his hands, which he thought so to intermix with his own followers, as the whole body should move by his spirit; and if he might have also absolutely into his own hands, "*potestatem vitæ et necis et arbitrium belli et pacis*," over the rebels of Ireland, whereby he might entice and make them his own, first by pardons and conditions, and after by hopes to bring them in place where they should serve for hope of better booties than cows, he should be able to make that place of lieutenantancy of Ireland as a rise or step to ascend to his desired greatness in England.

And although many of these conceits were windy, yet neither were they the less like to his; neither are they now only probable conjectures or comments upon these his last treasons, but the very preludes of actions almost immediately subsequent, as shall be touched in due place.

But first it was strange with what appetite and thirst he did affect and compass the government of Ireland, which he did obtain. For although he made some formal shows to put it from him, yet in this as in most things else, his desires being too strong for his dissimulations, he did so far pass the bounds of decorum, as he did in effect name himself to the queen by such description and such particularities as could not be applied to any other but himself; neither did he so only, but farther, he was still at hand to offer and urge vehemently and peremptorily exceptions to any other that was named.

Then after he once found that there was no man but himself, who had other matters in his head, so far in love with that charge as to make any competition or opposition to his pursuit, whereby he saw it would fall upon him, and especially after himself was resolved upon; he began to make propositions to her Majesty by way of taxation of the former course held in managing the actions of Ireland, especially upon three points; the first, that the proportions of forces which had been there

maintained and continued by supplies, were not sufficient to bring the prosecutions there to period. The second, that the axe had not been put to the root of the tree, in regard there had not been made a main prosecution upon the arch-traitor Tyrone in his own strength, within the province of Ulster. The third, that the prosecutions before time had been intermixed and interrupted with too many temporizing treaties, whereby the rebel did ever gather strength and reputation to renew the war with advantage. All which goodly and well-sounding discourses, together with great vaunts that he would make the earth tremble before him, tended but to this, that the queen should increase the list of her army, and all proportions of treasure and other furniture, to the end his commandment might be the greater. For that he never intended any such prosecution may appear by this, that even at the time before his going into Ireland, he did open himself so far in speech to blunt his inwardest counsellor, "That he did assure himself that many of the rebels in Ireland would be advised by him : " so far was he from intending any prosecution towards those in whom he took himself to have interest. But his ends were two ; the one to get great forces into his hands ; the other to oblige the heads of the rebellion unto him, and to make them of his party. These two ends had in themselves a repugnancy ; for the one imported prosecution, and the other treaty ; but he that meant to be too strong to be called to account for anything, and meant besides, when he was once in Ireland, to engage himself in other journeys that should hinder the prosecution in the north, took things in order as they made for him : and so first did nothing, as was said, but trumpet a final and utter prosecution against Tyrone in the north, to the end to have his forces augmented.

And in the same strain the account proceeds to the close. For example, in the narrative of the misguided earl's last insane attempt in London, which brought him to the scaffold, we are told that he and his adviser Cuffe had " set down between them the ancient principle of traitors and conspirators, which was to prepare many and to acquaint few ; and, after the manner of miners, to make ready their powder, and place it, and then give fire but in the instant." And all Essex's movements are throughout set in the most unfavourable light, and the worst construction put upon them.

The odium which he drew upon himself by the part which he had taken in this affair induced Bacon sometime afterwards to write a defence of his conduct, in the form of a Letter 'To the Right Honourable his very good lord, the Earl of Devonshire, Lord Lieutenant of Ireland.' This was Essex's friend, Charles Blount, previously Baron Mountjoy, who was created Earl of Devonshire, or rather of Devon, by James I. in July, 1603. The Letter, therefore, must have been written after that date.* It was immediately sent to the press, probably by Bacon himself; there are editions of it in 16mo. of the dates of 1604 and 1605; and it was reprinted in 4to. in 1642, and again in 16mo. in 1651. It is included in the Second Part of the *Resuscitatio* (1670), with the title of 'The Apology of Sir Francis Bacon, Knt., in certain Imputations concerning the late Earl of Essex.' It sets out thus:—

It may please your good Lordship, I cannot be ignorant, and ought to be sensible of the wrong which I sustain in common speech, as if I had been false or unthankful to that noble but unfortunate Earl, the Earl of Essex; and for satisfying the vulgar sort, I do not so much regard it, though I love a good name, but yet as an handmaid and attendant of honesty and virtue. For I am of his opinion that said pleasantly, that it was a shame to him that was a suitor to the mistress, to make love to the waiting-woman, and therefore to woo or court common fame otherwise than it followeth on honest courses, I for my part find not myself fit or disposed. But, on the other side, there is no worldly thing that concerneth myself which I hold more dear than the good opinion of certain persons, among which there is none I would more willingly give satisfaction unto than to your Lordship. First, because you loved my Lord of Essex, and therefore will not be partial towards me; which is part of that I desire; next, because it hath ever pleased you to show yourself to me an honourable friend, and so no baseness in me to seek to satisfy you; and lastly, because I know your Lordship is excellently grounded in the true rules and habits of duties and moralities, which

* The statement in Vol. I. p. 89, that it was written and probably printed by Bacon in 1601, is incorrect.

must be they which shall decide this matter, wherein, my Lord, my defence needeth be but simple and brief; namely, that whatsoever I did concerning that action and proceeding, was done in my duty and service to the queen and the state, in which I would not show myself false-hearted, nor faint-hearted, for any man's sake living. For every honest man that hath his heart well planted will forsake his king rather than forsake God; and forsake his friend rather than forsake his king, and yet will forsake any earthly commodity, yea, and his own life in some cases, rather than forsake his friend. I hope the world hath not forgotten these degrees, else the heathen saying, "Amicus usque ad aras," shall judge them.

And the following are the most interesting passages in the rest of the Letter:—

It is well known how I did many years since dedicate my travels and studies to the use and, as I may term it, service of my Lord of Essex, which, I protest before God, I did not, making election of him as the likeliest mean of my own advancement, but out of the humour of a man, that ever, from the time I had any use of reason (whether it were reading upon good books, or upon the example of a good father, or by nature), I loved my country more than was answerable to my fortune, and I held at that time my Lord to be the fittest instrument to do good to the state; and therefore I applied myself to him in a manner which I think happeneth rarely among men; for I did not only labour carefully and industriously in that he set me about, whether it were matter of advice or otherwise, but neglecting the queen's service, mine own fortune, and in a sort my vocation, I did nothing but advise and ruminate with myself to the best of my understanding, propositions, and memorials of anything that might concern his Lordship's honour, fortune, or service. And when, not long after I entered into this course, my brother, Mr. Anthony Bacon, came from beyond the seas, being a gentleman whose ability the world taketh knowledge of for matters of state, especially foreign, I did likewise knit his service to be at my Lord's disposing. And on the other side, I must and will ever acknowledge my Lord's love, trust, and favour towards me; and last of all his liberality having infeoffed me of land which I sold for eighteen hundred pounds to Master Reynold Nicholas, which I think was more worth, and that at such a time and with so kind and noble circumstances, as the manner was as much as

the matter; which though it be but an idle digression, yet, because I am not willing to be short in commemoration of his benefits, I will presume to trouble your Lordship with relating to you the manner of it. After the queen has denied me the solicitor's place, for the which his Lordship had been a long and earnest suitor on my behalf, it pleased him to come to me from Richmond to Twickenham Park, and brake with me, and said, Mr. Bacon, the queen hath denied me the place for you, and hath placed another. I know you are the least part of your own matter, but you fare ill, because you have chosen me for your mean and dependance; you have spent your time and thoughts in my matters; I die (these were his very words) if I do not somewhat towards your fortune. You shall not deny to accept a piece of land, which I will bestow upon you. My answer I remember was, that for my fortune it was no great matter; but that his Lordship's offer made me call in mind what was wont to be said when I was in France of the Duke of Guise, that he was the greatest usurer in France, because he had turned all his estate into obligations, meaning that he had left himself nothing, but only had bound numbers of persons to him. Now my Lord, said I, I would not have you imitate his course, nor turn your state thus by great gifts into obligations, for you will find many bad debtors. He bad me take no care for that, and pressed it; whereupon I said, My Lord, I see I must be your homager, and hold land of your gift, but do you know the manner of doing homage in law? Always it is with a saving of his faith to the king and his other Lords, and therefore my Lord, said I, I can be no more yours than I was, and it must be with the ancient savings; and if I grow to be a rich man, you will give me leave to give it back again to some of your unrewarded followers. . . . After this, during the while since my Lord was committed to my Lord Keeper's, I came divers times to the queen, as I had used to do, about causes of her revenue and law business, as is well known; by reason of which accesses, according to the ordinary charities of court, it was given out that I was one of them that incensed the queen against my Lord of Essex. These speeches I cannot tell, nor I will not think that they grew any way from her Majesty's own speeches, whose memory I will ever honour; if they did she is with God, and "*Miserum est ab illis laedi, de quibus non possis queri.*" But I must give this testimony to my Lord Cecil, that one time in his house at the Savoy, he dealt with me directly, and said to me, Cousin, I hear it, but

I believe it not, that you should do some ill office to my Lord of Essex; for my part, I am merely passive and not active in this action, and I follow the queen, and that heavily, and I lead her not; my Lord of Essex is one that in nature I could consent with as well as any one living; the queen indeed is my sovereign, and I am her creature, I may not lose her, and the same course I would wish you to take; whereupon I satisfied him how far I was from any such mind. And as sometimes it cometh to pass that men's inclinations are opened more in a toy than in a serious matter; a little before that time, being about the middle of Michaelmas term, her Majesty had a purpose to dine at my lodge at Twickenham Park, at which time I had (though I profess not to be a poet) prepared a sonnet directly tending and alluding to draw on her Majesty's reconcilment to my Lord, which I remember also, I showed to a great person, and one of my Lord's nearest friends, who commended it; this though it be, as I said, but a toy, yet it showed plainly in what spirit I proceeded, and that I was ready not only to do my Lord good offices, but to publish and declare myself for him; and never was I so ambitious of any thing in my lifetime, as I was to have carried some token or favour from her Majesty to my Lord, using all the art I had both to procure her Majesty to send, and myself to be the messenger. . . . And I was never better welcome to the queen, nor more made of than when I spake fullest and boldest for him; in which kind the particulars were exceeding many, whereof for an example I will remember to your Lordship one or two; as at one time I call to mind, her Majesty was speaking of a fellow that undertook to cure, or at least to ease, my brother of his gout, and asked me how it went forward; and I told her Majesty that at first he received good by it; but after in the course of his cure he found himself at a stay or rather worse; the queen said again, I will tell you, Bacon, the error of it; the manner of these physicians, and especially these empirics, is to continue one kind of medicine, which at the first is proper, being to draw out the ill humour; but after they have not the discretion to change the medicine, but apply still drawing medicines, when they should rather intend to cure and corroborate the part: Good Lord, Madam, said I, how wisely and aptly can you speak and discern of physick ministered to the body, and consider not that there is the like occasion of physick ministered to the mind, as now in the case of my Lord of Essex, your princely word ever was that you intended ever to reform his mind, and not ruin his fortune; I

know well you cannot but think that you have drawn the humour sufficiently, and therefore it were more than time, and it were but for a doubt of mortifying or exculcerating, that you did apply and minister strength and comfort unto him, for these same gradations of yours are fitter to corrupt than correct any mind of greatness; and another time I remember she told me for news, that my Lord had written unto her some very dutiful letters, and that she had been moved by them, and when she took it to be the abundance of his heart, she found it to be but a preparative to a suit for the renewing of his farm of sweet wines; whereunto I replied, O Madam, how doth your Majesty construe these things, as if these two could not stand well together, which indeed nature hath planted in all creatures. For there are but two sympathies, the one towards perfection, the other towards preservation; that to perfection as the iron tendeth to the loadstone, that to preservation as the vine will creep towards a stake or prop that stands by it, not for any love to the stake, but to uphold itself. And therefore, Madam, you must distinguish: my Lord's desire to do you service is, as to his perfection, that which he thinks himself to be born for; whereas his desire to obtain this thing of you is but for a sustentation.

At the end we have Bacon's own distinct admission that he was the writer of the 'Declaration':—

The troth is, that the issue of his dealing grew to this, that the queen by some slackness of my lord's, as I imagine, liked him worse and worse, and grew more incensed towards him. Then she, remembering belike the continual and incessant and confident speeches and courses, that I had held on my lord's side, became utterly alienated from me, and for the space of at least three months, which was between Michaelmas and new-year's tide following, would not so much as look on me, but turned away from me with express and purpose-like discountenance wheresoever she saw me, and at such times as I desired to speak with her about law business, ever sent me forth very slight refusals, insomuch as it is most true, that immediately after new-year's tide I desired to speak with her, and being admitted to her, I dealt with her plainly and said, Madam, I see you withdraw your favour from me, and now I have lost many friends for your sake, I shall lose you too; you have put me like one of those that the Frenchmen call *enfants perdus*, that serve on foot before horsemen, so have you put me into

matters of envy without place, or without strength; and I know at chess a pawn before a king is ever much played upon. A great many love me not, because they think I have been against my Lord of Essex, and you love me not because you know I have been for him; yet will I never repent me that I have dealt in simplicity of heart towards you both, without respect of cautions to myself, and therefore, *vivus vidensque pereo*. If I do break my neck, I shall do it in a manner as Master Dorrington did it, which walked on the battlements of the church many days, and took a view and survey where he should fall; and so, Madam, said I, I am not so simple but that I take a prospect of mine overthrow, only I thought I would tell you so much that you may know that it was faith, and not folly, that brought me into it, and so I will pray for you. Upon which speeches of mine, uttered with some passion, it is true her Majesty was exceedingly moved, and accumulated a number of kind and gracious words upon me, and willed me to rest upon this, *Gratia mea sufficit*, and a number of other sensible and tender words and demonstrations, such as more could not be, but as touching my Lord of Essex, *ne verbum quidem*. Whereupon I departed, resting, then determined to meddle no more in the matter, as that I saw would overthrow me, and not be able to do him any good. . . . It is very true also, about that time her Majesty taking a liking of my pen, upon that which I formerly had done concerning the proceeding at York House, and likewise upon some other declarations, which in former times by her appointment I put in writing, commanded me to pen that book which was published for the better satisfaction of the world, which I did, but so as never secretary had more particular and express directions and instructions in every point how to guide my hand in it; and not only so, but after that I had made a first draught thereof, and propounded it to certain principal councillors, by her Majesty's appointment it was perused, weighed, censured, altered, and made almost anew, writing according to their Lordships' better consideration; wherein their Lordships and myself were both as religious and curious of truth as desirous of satisfaction, and myself indeed gave only words and form of style in pursuing their direction. And after it had passed their allowance, it was again exactly perused by the queen herself, and some alterations made again by her appointment: nay, and after it was set to print, the queen, who, as your Lordship knoweth, as she was ex-

cellent in great matters, so she was exquisite in small, and noted that I could not forget my ancient respect to my Lord of Essex, in terming him ever my Lord of Essex, my Lord of Essex, almost in every page of the book, which she thought not fit, but would have it made Essex, or the late Earl of Essex ; whereupon of force it was printed *de novo*, and the first copies suppressed by her peremptory commandment.

The mere existence of this Letter precludes us from giving much weight to one plea which has been urged on Bacon's behalf. A late writer, to whom we are indebted for by far the fullest and most learned and exact account that we possess of the trial of the Earl of Essex, observes :—" The conduct of Bacon, in taking so active a share in a proceeding which involved the life of his patron and benefactor, has often been the subject of severe animadversion, and has justly been considered as one of the many dark shades in the character of this 'greatest, brightest, *meanest* of mankind.' Bacon was bound to the Earl of Essex by the strongest obligations ; the earl had been, from the commencement of his fortunes, his steady friend and munificent patron ; he had been instant with the queen, in season and out of season, in urging his promotion, and, when disappointed of the office of Solicitor-General, had presented him with a considerable estate. Without intending wholly to excuse him, however, it may be questioned, whether the circumstances in which Bacon was placed with reference to this trial have been sufficiently considered ; and whether his conduct has not been judged rather by our modern and improved notions of delicacy and propriety than by the standard according to which the actions and feelings of men were regulated two centuries ago." * But here, in this 'Apology,' we have it under Bacon's own hand, that in the common speech of his own day his conduct was represented as false or unthankful ; and he admits, by the very fact of defending himself, that such imputations were thrown upon him by more than "the vulgar sort,"—by some persons of whom he avows that

* Criminal Trials, by David Jardine, Esq. (in *Library of Entertaining Knowledge*). Lond. 1832. Vol. I. p. 385.

there is no worldly thing concerning himself which he holds more dear than their good opinion. The ground that he himself takes his stand upon, as we have seen, is, that whatever he had done was done in his duty and service to the queen and the state. Now, let us admit, for the sake of the argument, that the claims of the state are paramount to all other claims. Still, such claims must be clearly established, before they can be allowed to set aside all others. In a case of state necessity it might perhaps have been Bacon's duty actually, at the queen's bidding, to perform execution upon Essex with his own hand. But where was the state necessity in the present case? Bacon was one of the queen's counsel learned in the law at a time when his friend was about to be brought to trial on a charge affecting his life; what made it necessary that he of all men should take part in conducting the prosecution? Would he have done so if the prisoner had been his father or his brother? Would any ill consequences whatever have followed to the state if he had declined doing so? Would not the only injury or risk have been to his own professional advancement? And must it not, therefore, have been a regard to that, and not his duty and service to the queen and the state, which made him do what he did? If he had been the only lawyer in England that could have been got to conduct the prosecution, believing, as he lets us understand that he did, in the guilt of Essex up to the extreme point charged in the indictment, it might have been his duty not to refuse his services; but, as the case stood, any such pretence was ludicrous. The world, therefore, naturally expected that a sense of decency, if not any feeling of gratitude, would have withheld him from even giving so much as his presence and countenance to a proceeding by which it was sought to take the life of one to whom he had been so much indebted as he had been to Essex. It was thought that he ought no more to have appeared as one of the counsel for the crown against such a friend, than he ought to have done so against his own brother. He boasts that he would not show himself either false-hearted or faint-hearted:

in reality he showed himself both. Most probably the selfish fears which urged him to take the part he did were quite visionary, and, instead of hurting his fortunes, he might have done the very reverse by adopting an opposite course. It is not likely, indeed, that, situated as he was, he would ever have been asked to give his assistance towards the conviction of Essex if he had evinced any disinclination to do so. We are entitled to presume, from his own showing, that he must rather have proffered it. We may venture at any rate to doubt whether any really high-minded man was ever either reduced or induced to act as Bacon did here. Does the whole history of the legal profession, in England and in all other countries, afford another instance of such conduct which the opinion of mankind has not been unanimous in condemning? But still worse than Bacon's appearance as counsel at the trial was his writing the *Declaration* afterwards. The queen, he says, had taken a liking to his pen, and he had particular and express directions and instructions in every point how to guide his hand, and he gave only words and form of style; and this is his apology for consenting to apply all the powers of his eloquence to blacken the memory of his friend and benefactor! Whether it was subserviency or vanity that actuated him, such prostitution is equally despicable. But Mr. Jardine's researches have detected something more in the service that Bacon rendered on this occasion than even his own confession admits. The *Declaration* professes to give the evidences themselves on which Essex was convicted, "word for word, taken out of the originals;" these originals still exist in the State-Paper Office, but upon examination they are found by no means to agree exactly with the depositions as published along with the *Declaration*; there are numerous omissions in the latter; and in every instance the passages omitted are marked in the original papers with the letters *Om.* in Bacon's handwriting. In every instance also the intention of the omission is obvious; they are all clearly designed and artfully contrived to support the government view of the case and to give a darker colour

to the criminality of the prisoner.* This, it must be acknowledged, was following directions, and leaving everything else out of sight, a very long way.

In an unfinished discourse, entitled 'Of the True Greatness of the Kingdom of Britain,' addressed 'to King James,' and first published in Stephens's Second Collection (1734), Bacon proposes to consider the general subject of the real force and power of a state, "first, by confuting the errors, or rather correcting the excesses, of certain immoderate opinions, which ascribe too much to some points of greatness, which are not so essential, and by reducing those points to a true value and estimation; then, by propounding and confirming those other points of greatness which are more solid and principal, though in popular discourse less observed; and, incidently, by making a brief application, in both these parts, of the general principles and positions of policy unto the state and conditions of these your Kingdoms." He then proceeds :—

Of these the former part will branch itself into these articles :—

First, That in the measuring or balancing of greatness, there is commonly too much ascribed to largeness of territory.

Secondly, That there is too much ascribed to treasure or riches.

Thirdly, That there is too much ascribed to the fruitfulness of the soil, or affluence of commodities.

And, fourthly, That there is too much ascribed to the strength and fortification of towns or holds.

The latter will fall into this distribution :—

First, That true greatness doth require a fit situation of the place or region.

Secondly, That true greatness consisteth essentially in population and breed of men.

Thirdly, That it consisteth also in the value and military disposition of the people it breedeth, and in this that they make profession of arms.

Fourthly, That it consisteth in this point, that every common

* See Criminal Trials, I. 332, 333, *note*.

subject by the poll be fit to make a soldier, and not only certain conditions or degrees of men.

Fifthly, That it consisteth in the temper of the government fit to keep the subjects in good heart and courage, and not to keep them in the condition of servile vassals.¹

And, sixthly, That it consisteth in the commandment of the sea.

And let no man so much forget the subject propounded as to find strange that here is no mention of religion, laws, or policy. For we speak of that which is proper to the amplitude and growth of states, and not of that which is common to their preservation, happiness, and all other points of well-being.

The following is the commencement of what is said under the second article of the first head, "That there is too much ascribed to treasure or riches in the balancing of greatness :"—

Wherein no man can be ignorant of the idolatry that is generally committed in these degenerate times to money, as if it could do all things public and private; but, leaving popular errors, this is likewise to be examined by reason and examples, and such reason as is no new conceit or invention, but hath formerly been discerned by the sounder sort of judgments. For we see that Solon, who was no contemplative wise man, but a statesman and a lawgiver, used a memorable censure to Croesus, when he showed him great treasures and store of gold and silver that he had gathered, telling him that whensoever another should come that had better iron than he, he would be master of all his gold and silver. Neither is the authority of Machiavel to be despised, specially in a matter whereof he saw the evident experience before his eyes in his own times and country, who derideth the received and current opinion and principal of estate, taken first from a speech of Mutianus, the lieutenant of Vespasian, that money was the sinews of war, affirming that it is a mockery, and that there are no other true sinews of war but the sinews and muscles of men's arms; and that there never was any war wherein the more valiant people had to deal with the more wealthy, but that the war, if it were well conducted, did nourish and pay itself. And had he not reason so to think when he saw a needy and ill-provided army of the French, though needy rather by negligence than want of means, as the French manner oftentimes is, make their passage only by the repu-

tation of their swords by their sides undrawn, through the whole length of Italy, at that time abounding in wealth after a long peace, and that without resistance, and to seize and leave what countries and places it pleased them? But it was not the experience of that time alone, but the records of all times that do concur to falsify that conceit, that wars are decided not by the sharpest sword, but by the greatest purse. And that very text or saying of Mutianus, which was the original of this opinion, is misvouched: for his speech was, "*Pecuniae sunt nervi belli civilis*," which is true, for that civil wars cannot be between people of differing valour: and again, because in them men are as oft bought as vanquished; but in case of foreign wars you shall scarcely find any of the great monarchies of the world, but have had their foundations in poverty and contemptible beginnings, being in that point also conform to the heavenly kingdom, of which it is pronounced, "*Regnum Dei non venit cum observatione*." Persia, a mountainous country, and a poor people in comparison of the Medes and other provinces which they subdued. The state of Sparta, a state wherein poverty was enacted by law and ordinance, all use of gold and silver and rich furniture being interdicted. The state of Macedonia, a state mercenary and ignoble until the time of Philip. The state of Rome, a state that had poor and pastoral beginnings. The state of the Turks, which hath been since the terror of the world, founded upon a transmigration of some bands of Sarmatian Scythes that descended in a vagabond manner upon the province that is now termed Turcomania: out of the remnants whereof, after great variety of fortune, sprang the Ottoman family. But never was any position of estate so visibly and substantially confirmed as this touching the pre-eminence, yea, and predominancy of valour above treasure, as by the two descents and inundations of necessitous and indigent people, the one from the east and the other from the west, that of the Arabians or Saracens, and that of the Goths, Vandals, and the rest, who, as if they had been the true inheritors of the Roman empire then dying, or at least grown impotent and aged, entered upon Egypt, Asia, Graecia, Afrik, Spain, France, coming to these nations not as to a prey but as to a patrimony, not returning with spoil but seating and planting themselves in a number of provinces, which continue their progeny and bear their names till this day. And all these men had no other wealth but their adventures, nor no other title but their swords, nor no other press but their

poverty. For it was not with most of these people as it is in countries reduced to a regular civility, that no man almost marrieth except he see he have means to live; but population went on, howsoever sustenance followed, and taught by necessity, as some writers report, when they found themselves surcharged with people, they divided their inhabitants into three parts, and one third, as the lot fell, was sent abroad and left to their adventures. Neither is the reason much unlike, though the effect hath not followed in regard of a special diversion in the nation of the Swisses inhabiting a country, which, in regard of the mountainous situation and the popular estate, doth generate faster than it can sustain. In which people it well appeared what an authority iron hath over gold at the battle of Granson, at what time one of the principal jewels of Burgundy was sold for twelve pence by a poor Swiss that knew no more a precious stone than did Æsop's cock. And although this people have made no plantations with their arms, yet we see the reputation of them such as not only their forces have been employed and waged, but their alliance sought and purchased by the greatest kings and states of Europe. So, as though fortune, as it fares sometimes with princes to their servants, hath denied them a grant of lands, yet she hath granted them liberal pensions, which are made memorable and renowned to all posterity by the event which ensued to Louis the Twelfth, who, being pressed uncivilly by message from them for the enhancing their pensions, entered into choler and broke out into these words, "What! will these villains of the mountains put a tax upon me?" which words cost him his duchy of Milan, and utterly ruined his affairs in Italy. Neither were it indeed possible at this day that that nation should subsist without descents and impressions upon their neighbours, were it not for the great utterance of the people which they make into the services of foreign princes and estates, thereby discharging not only number, but in that number such spirits as are most stirring and turbulent.

The fragment contains no discussion of the third article of the first head, and only a few sentences about the first of the affirmative articles.

From 'A Brief Discourse of the Happy Union of the Kingdoms of England and Scotland, Dedicated in private to his Majesty,' which is published in the First

Part of the *Resuscitatio* (1657), the following are extracts:—

I do not find it strange, excellent king, that when Heraclitus (he that was surnamed the Obscure) had set forth a certain book (which is not now extant), many men took it for a discourse of nature, and many others took it for a treatise of policy; for there is a great affinity and consent between the rules of nature and the true rules of policy: the one being nothing else but an order in the government of the world, and the other an order in the government of an estate; and, therefore, the education and erudition of the kings of Persia was in a science which was termed by a name then of great reverence, but now degenerate and taken in the ill part; for the Persian magic, which was the secret literature of their kings, was an application of the contemplations and observations of nature unto a sense politic, taking the fundamental laws of nature and the branches and passages of them as an original, or first model, whence to take and describe a copy and imitation for government.

After this manner the foresaid instructors set before their kings the examples of the celestial bodies, the sun, the moon, and the rest, which have great glory and veneration, but no rest or intermission, being in a perpetual office of motion for the cherishing, in turn and in course, of inferior bodies, expressing likewise the true manner of the motions of government, which, though they ought to be swift and rapid, in respect of dispatch and occasions, yet are they to be constant and regular, without wavering or confusion.

So did they represent unto them how the heavens do not enrich themselves by the earth and the seas, nor keep no dead stock nor untouched treasures of that they draw to them from below: but whatsoever moisture they do levy and take from both elements in vapours, they do spend and turn back again in showers, only holding and storing them up for a time, to the end to issue and distribute them in season.

Now, to speak briefly of the several parts of that form, whereby states and kingdoms are perfectly united, they are (besides the sovereignty itself) four in number, union in name, union in language, union in laws, union in employments.

For name, though it seem but a superficial and outward matter, yet it carrieth much impression and enchantment. The general and common name of Graecia made the Greeks

always apt to unite (though otherwise full of divisions amongst themselves) against other nations, whom they called barbarous. The Helvetian name is no small band to knit together their leagues and confederacies the faster. The common name of Spain, no doubt, hath been a special means of the better union and conglutination of the several kingdoms of Castile, Aragon, Granada, Navarre, Valentia, Catalonia, and the rest, comprehending also now lately Portugal.

For language, it is not needful to insist upon it, because both your Majesty's kingdoms are of one language, though of several dialects, and the difference is so small between them, as promiseth rather an enriching of one language than a continuance of two.

For laws, which are the principal sinews of government, they be of three natures : *jura*, which I will term freedoms, or abilities, *leges*, and *mores*.

For abilities and freedoms, they were, amongst the Romans, of four kinds, or rather degrees : *jus connubii*, *jus civitatis*, *jus suffragii*, and *jus petitionis*, or *honorum*. *Jus connubii* is a thing in these times out of use, for marriage is open between all diversities of nations. *Jus civitatis* answereth to that we call denization or naturalization. *Jus suffragii* answereth to the voice in parliament. *Jus petitionis* answereth to the place in counsel or office ; and the Romans did many times sever these freedoms, granting *jus connubii*, *sine civitate* ; and *civitatem*, *sine suffragio* ; and *suffragium*, *sine jure petitionis*, which was commonly with them the last.

For those we call *leges*, it is a matter of curiosity and inconvenience to seek either to extirpate all particular customs, or to draw all subjects to one place or resort of judicature and session. It sufficeth there be a uniformity in the principal and fundamental laws, both ecclesiastical and civil : for in this point the rule holdeth which was pronounced by an ancient father touching the diversity of rites in the Church ; for, finding the vesture of the queen in the Psalm (which did prefigure the Church) was of divers colours, and finding again that Christ's coat was without a seam, he concluded well, "*In veste varietas sit, scissura non sit.*"

For manners, a consent in them is to be sought industriously, but not to be enforced : for nothing amongst a people breedeth so much pertinacity in holding their customs, as sudden and violent offer to remove them.

And as for employments, it is no more but in indifferent hand, and execution of that verse :—

“Tros Tyriusque mihi nullo discrimine agetur.”

Another paper relating to the same subject, and also contained in the First Part of the *Resuscitatio*, is entitled ‘Certain Articles or Considerations touching the Union of the Kingdoms of England and Scotland; collected and dispersed for his Majesty’s better service.’ It commences as follows :—

Your Majesty being, I doubt not, directed and conducted by a better oracle than that which was given for light to Æneas, in his peregrination (*antiquam exquirite matrem*), hath a royal, and, indeed, an heroical, desire to reduce these two kingdoms of England and Scotland into the unity of their ancient mother kingdom of Britain. Wherein, as I would gladly applaud unto your Majesty, or sing aloud that hymn or anthem “*Sic itur ad astra* ;” so, in a more soft and submissive voice, I must necessarily remember unto your Majesty that warning or caveat, “*ardua, quae pulchra* :” it is an action that requireth, yea, and needeth much, not only of your Majesty’s wisdom, but of your felicity. In this argument I presumed, at your Majesty’s first entrance, to write a few lines indeed scholastically and speculatively, and not actively or politically, as I held it fit for me at that time, when neither your Majesty was, in that your desire, declared, nor myself in that service used or trusted. But now that both your Majesty hath opened your desire and purpose with much admiration, even of those who gave it not so full an approbation ; and that myself was, by the Commons graced with the first vote of all the Commons, selected for that cause : not in any estimation of my ability (for therein so wise an assembly could not be so much deceived), but in an acknowledgment of my extreme labours and integrity in that business, I thought myself every way bound both in duty to your Majesty, and in trust to that House of Parliament, and in consent to the matter itself, and in conformity to mine own travails and beginnings, not to neglect any pains that may tend to the furtherance of so excellent a work ; wherein I will endeavour that that which I shall set down be *nihil minus quam verba* : for length and ornament of speech are to be used for persuasion of multitudes, and not for information of kings : especially such a king as is the only

instance that ever I knew to make a man of Plato's opinion, that all knowledge is but remembrance; and that the mind of man knoweth all things, and demandeth only to have her own notions excited and awaked; which your Majesty's rare, and indeed singular, gift and faculty of swift apprehension and infinite expansion or multiplication of another man's knowledge by your own, as I have often observed, so I did extremely admire in Goodwin's cause; being a matter full of secrets and mysteries of our laws merely new unto you, and quite out of the path of your education, reading, and conference: wherein, nevertheless, upon a spark of light given, your Majesty took in so dexterously and profoundly as if you had been indeed *anima legis*, not only in execution but in understanding; the remembrance whereof, as it will never be out of my mind, so it will always be a warning to me to seek rather to excite your judgment briefly than to inform it tediously: and if in a matter of that nature, how much more in this, wherein your princely cogitations have wrought themselves and been conversant, and wherein the principal light proceeded from yourself.

Afterwards it is observed that the points wherein the two nations of England and Scotland stand already united are, 1. In Sovereignty; 2. In Subjection; 3. In Religion; 4. In Continent; 5. In Language; 6. In Leagues and Confederacies with foreign powers, "now, by the peace concluded with Spain"—an expression which determines the date of the paper to have been subsequent to August, 1604. "Yet notwithstanding," it is added, "there is none of the six points wherein the union is perfect and consummate; but every of them hath some scruple or rather grain of separation in-wrapped and included in them." And then the exposition proceeds:—

For the sovereignty, the union is absolute in your Majesty and your generation; but if it should be so (which God, of his infinite mercy, defend), that your issue should fail, then the descent of both realms doth resort to the several lines of the several bloods royal.

For subjection, I take the law of England to be clear (what the law of Scotland is, I know not), that all Scottishmen, from the very instant that your Majesty's reign begun, are become

denizens, and the post-nati are naturalized subjects of England for the time forwards; for, by our laws, none can be an alien but he that is of another allegiance than our Sovereign Lord the King's. For there be but two sorts of aliens whereof we find mention in our law: an alien ami, and an alien enemy; whereof, the former is a subject of a state in amity with the king, and the latter a subject of a state in hostility; but whether he be one or other, it is an essential difference unto the definition of an alien if he be not of the King's allegiance: as we see it evidently in the precedent of Ireland, who, since they were subjects to the crown of England, have ever been inheritable and capable as natural subjects, and yet not by any statute or act of Parliament, but merely by the common law and the reason thereof. So, as there is no doubt, that every subject of Scotland was and is in like plight and degree, since your Majesty's coming in, as if your Majesty had granted particularly your letters of denization or naturalization to every of them, and the post-nati wholly natural. But then, on the other side, for the time backwards, and for those that were ante-nati, the blood is not by law naturalized, so as they cannot take it by descent from their ancestors without act of parliament. And therefore, in this point, there is a defect in the union of subjection.

For matter of religion, the union is perfect in points of doctrine; but in matter of discipline and government it is imperfect.

For the continent, it is true there are no natural boundaries of mountains, or seas, or navigable rivers; but yet there are badges and memorials of borders, of which point I have spoken before.

For the language, it is true the nations are *unius labii*, and have not the first curse of disunion, which was confusion of tongues, whereby one understood not another; but yet the dialect is differing, and it remaineth a kind of mark of distinction. But for that, *tempori permittendum*, it is to be left to time; for considering that both languages do concur in the principal office and duty of a language, which is to make a man's self understood, for the rest it is rather to be accounted, as was said, a diversity of dialect than of language; and, as I said in my first writing, it is like to bring forth the enriching of one language by compounding and taking in the proper and significant words of either tongue, rather than a continuance of two languages.

For leagues and confederacies, it is true that neither nation is now in hostility with any state wherewith the other nation is in amity, but yet so as the leagues and treaties have been concluded with either nation respectively, and not with both jointly, which may contain some diversity of articles of strictness of amity with one more than with the other.

But many of these matters may, perhaps, be of that kind as may fall within that rule, *In veste-varietas sit, scissura non sit.*

There is also in Stephens's Second Collection the commencement of a paper entitled 'The most humble Certificate of Return of the Commissioners of England and Scotland authorized to treat of an Union for the weal of both Realms, 2 Jac. I. [Prepared, but Altered.]' Bacon was in 1604 appointed one of the Commissioners for the Commons under the stat. 1 Jac. I. c. 2, to treat concerning a Union of the two kingdoms with other commissioners to be appointed by the parliament of Scotland;—a project, however, which came to no result at that time.

Along with these papers respecting a Union with Scotland may be mentioned another, also in the First Part of the *Resuscitatio*, entitled 'Certain Considerations touching the Plantation in Ireland, Presented to his Majesty, 1606.' The date, however, ought certainly to be at least a year later; for Bacon speaks of himself as being now Solicitor-General, which he was not till June, 1607. After some introductory observations, the subject of the Plantation or Colonization of Ireland is thus taken up:—

For the excellency of the work, I will divide it into four noble and worthy consequences that will follow thereupon. The first of the four is honour, whereof I have spoken enough already, were it not that the harp of Ireland puts me in mind of that glorious emblem or allegory wherein the wisdom of antiquity did figure and shadow out works of this nature. For the poets feigned that Orpheus, by the virtue and sweetness of his harp, did call and assemble the beasts and birds of their nature wild and savage, to stand about him as in a theatre, forgetting their affections of fierceness of lust and of prey, and

listening to the tunes and harmonies of the harp; and soon after called likewise the stones and the woods to remove and stand in order about him: which fable was auciently interpreted of the reducing and plantation of kingdoms, when people of barbarous manners are brought to give over and discontinue their customs of revenge and blood, and of dissolute life, and of theft, and of rapine, and to give ear to the wisdom of laws and governments: whereupon, immediately followeth the calling of stones for building and habitation, and of trees for the seats of houses, orchards, and enclosures, and the like.

This work, therefore, of all other most memorable and honourable your Majesty hath now in hand, specially if your Majesty join the harp of David, in casting out the evil spirit of superstition, with the harp of Orpheus in casting out desolation and barbarism.

The second consequence of this enterprize is the avoiding of an inconvenience which commonly attendeth upon happy times, and is an evil effect of a good cause. The revolution of this present age seemeth to incline to peace almost generally in these parts; and your Majesty's most Christian and virtuous affection do promise the same more specially to these your kingdoms. An effect of peace in fruitful kingdoms (where the stock of people, receiving no consumption nor diminution by war, doth continually multiply and increase) must, in the end, be a surcharge or overflow of people more than the territories can well maintain; which, many times insinuating a general necessity and want of means into all estates, doth turn external peace into internal troubles and seditions; now what an excellent diversion of this inconvenience is ministered by God's providence to your Majesty in this plantation of Ireland, wherein so many families may receive sustentation and fortunes; and the discharge of them also out of England and Scotland may prevent many seeds of future perturbations. So that it is as if a man were troubled for the avoidance of water from the place where he hath built his house, and afterwards, should advise with himself to cast those waters, and to turn them into fair pools or streams for pleasure, provision, or use. So shall your Majesty, in this work, have a double commodity in the avoidance of people here and in making use of them there.

The third consequence is, the great safety that is like to grow to your Majesty's estate in general by this act, in discounting all hostile attempts of foreigners, which the weakness of

that kingdom hath heretofore invited, wherein I shall not need to fetch reasons afar off, either for the general or particular; for the general, because nothing is more evident than that which one of the Romans said of Peloponnesus: *Testudo intra tegumen tuta est*; the tortoise is safe within her shell: but if she put forth any part of her body, then it endangereth not only the part that is so put forth, but all the rest; and so we see in armour, if any part be left naked, it puts in hazard the whole person; and in the natural body of man, if there be any weak or affected part, it is enough to draw rheums or malign humours unto it, to the interruption of the health of the whole body.

And for the particular, the example is too fresh that the indisposition of that kingdom hath been a continual attractive of troubles and infestations upon this estate; and though your Majesty's greatness doth, in some sort, discharge this fear, yet, with your increase of power, it cannot be but envy is likewise increased.

The fourth and last consequence is, the great profit and strength which is like to redound to your crown by the working upon this unpolished part thereof, whereof your Majesty (being in the strength of your years) are like, by the good pleasure of Almighty God, to receive more than the first fruits, and your posterity a growing and springing vein of riches and power. For this island being another Britain, as Britain was said to be another world, is endowed with so many dowries of nature (considering the fruitfulness of the soil, the ports, the rivers, the fishings, the quarries, the woods, and other materials; and especially the race and generation of men, valiant, hardy, and active), as it is not easy, no, not upon the Continent, to find such confluence of commodities, if the hand of man did join with the hand of nature. So, then, for the excellency of the work in point of honour, policy, safety, and utility, here I cease.

Under the second head, of the Means, the following observations are made respecting the buildings to be erected by the undertakers, as the persons were called who were to be induced to advance the necessary funds for the plantation:—

My opinion is, that the building be altogether in towns, to be compounded as well of husbandries as of arts. My reasons are:

First, when men come into a country vast and void of all things necessary for the use of man's life, if they set up together in a place, one of them will the better supply the wants of another: work-folks of all sorts will be the more continually on work without loss of time; when, if work fail in one place, they may have it fast by; the ways will be made more passable for carriages to those seats or towns than they can be to a number of dispersed solitary places, and infinite other helps and easements scarcely to be comprehended in cogitation, will ensue in vicinity and society of people; whereas, if they build scattered, as is projected, every man must have a cornucopia in himself for all things he must use, which cannot but breed much difficulty and no less waste.

Secondly, it will draw out of the inhabited country of Ireland provisions and victuals, and many necessities, because they shall be sure of utterance; whereas, in the dispersed habitations, every man must reckon only upon that that he brings with him, as they do in provisions of ships.

Thirdly, the charge of bawnes, as they call them, to be made about every castle or house, may be spared when the habitations shall be congregated only into towns.

And lastly, it will be a means to secure the country against future perils in case of any revolt and defection. For, by a slight fortification, of no great charge, the danger of any attempts of kierns and swordsmen may be prevented: the omission of which point, in the last plantation of Munster, made the work of years to be but the spoil of days. And if any man think it will draw people too far off from the grounds they are to labour, it is to be understood that the number of the towns be increased accordingly, and likewise the situation of them be as in the centre, in respect of the portions assigned to them. For in the champaign countries of England, where the habitation useth to be in towns and not dispersed, it is no new thing to go two miles off to plough part of their grounds; and two miles compass will take up a good deal of country.

Another paper published in the First Part of the *Resuscitatio* is entitled 'Advice to the King touching Mr. Sutton's Estate.' Its object is to make out the impolicy of permitting the erection of the Charter-House, to which purpose Sutton had devoted his large fortune. It was probably written subsequently to the death of Sutton, which happened in 1611, after he had obtained

the King's letters patent authorising his benevolent project. The following are the most material passages :—

May it please your Majesty, I find it a positive precept of the old law, that there should be no sacrifice without salt; the moral whereof (besides the ceremony) may be: that God is not pleased with the body of a good intention except it be seasoned with that spiritual wisdom and judgment as it be not easily subject to be corrupted and perverted. For salt, in the Scripture, is a figure both of wisdom and lasting. This cometh into my mind upon this act of Mr. Sutton, which seemeth to me as a sacrifice without salt: having the materials of a good intention, but not powdered with any such ordinances and institutions as may preserve the same from turning corrupt, or, at least, from becoming unsavoury and of little use. For, though the choice of the feoffees be of the best, yet neither can they always live; and the very nature of the work itself, in the vast and unfit proportions thereof, being apt to provoke a mis-employment; it is no diligence of theirs (except there be a digression from that model) that can excuse it from running the same way that gifts of like condition have heretofore done. For to design the Charter-house, a building fit for a prince's habitation, for an hospital, is all one as if one should give in alms a rich embroidered cloak to a beggar. And certainly, a man may see, *tanquam quæ oculis cernuntur*, that if such an edifice, with six thousand pounds revenue, be erected into one hospital, it will, in small time, degenerate to be made a preferment of some great person to be master, and he to take all the sweet, and the poor to be stinted and take but the crumbs; as it comes to pass in divers hospitals of this realm, which have but the names of hospitals, and are only wealthy benefices in respect of the mastership, but the poor, which is the proper quid, little relieved. And the like hath been the fortune of much of the alms of the Roman religion in their great foundations, which, being begun in vain-glory and ostentation, have had their judgment upon them to end in corruption and abuse. This meditation hath made me presume to write these few lines to your Majesty, being no better than good wishes, which your Majesty's great wisdom may make something or nothing of.

Wherein I desire to be thus understood, that if this foundation (such as it is) be perfect and good in law, then I am too well

acquainted with your Majesty's disposition to advise any course of power or profit that is not grounded upon a right; nay further, if the defects be such as a court of equity may remedy and cure, then I wish that as Saint Peter's shadow did cure diseases, so the very shadow of a good intention may cure defects of that nature. But if there be a right and birth-right planted in the heir, and not remediable by courts of equity, and that right be submitted to your Majesty, whereby it is in your power and grace what to do, then I do wish that this rude mass and chaos of a good deed were directed rather to a solid merit and durable charity than to a blaze of glory that will but crackle a little in talk and quickly extinguish. . . .

The next consideration may be, whether this intended hospital, as it hath a more ample endowment than other hospitals have, should not likewise work upon a better subject than other poor; as that it should be converted to the relief of maimed soldiers, decayed merchants, householders, aged and destitute churchmen, and the like, whose condition, being of a better sort than loose people and beggars, deserveth both a more liberal stipend and allowance, and some proper place of relief, not intermingled or coupled with the basest sort of poor; which project, though specious, yet, in my judgment, will not answer the designment in the event in these our times. For certainly few men in any vocation which have been some body and bear a mind somewhat according to the conscience and remembrance of that they have been, will ever descend to that condition as to profess to live upon alms, and to become a corporation of declared beggars; but rather will choose to live obscurely, and as it were to hide themselves with some private friends: so that the end of such an institution will be, that it will make the place a receptacle of the worst, idlest, and most dissolute persons of every profession; and to become a cell of loiterers, and cast serving-men, and drunkards, with scandal rather than fruit to the commonwealth. And of this kind I can find but one example with us, which is the alms knights of Windsor: which particular would give a man small encouragement to follow that precedent.

Therefore the best effect of hospitals is to make the kingdom, if it were possible, capable of that law, that there be no beggar in Israel. For it is that kind of people that is a burthen, an eye-sore, a scandal, and a seed of peril and tumult in the state. But chiefly it were to be wished that such a beneficence towards the relief of the poor were so bestowed; as not only the

mere and naked poor should be sustained, but also that the honest person which hath hard means to live, upon whom the poor are now charged, should be in some sort eased. For that were a work generally acceptable to the kingdom, if the public hand of alms might spare the private hand of tax. And therefore, of all other employments of that kind I commend most houses of relief and correction, which are mixed hospitals, where the impotent person is relieved and the sturdy beggar buckled to work; and the unable person also not maintained to be idle (which is ever joined with drunkenness and impurity), but is sorted with such work as he can manage and perform, and where the uses are not distinguished, as in other hospitals; whereof some are for aged and impotent, and some for children, and some for correction of vagabonds; but are general and promiscuous, so that they may take off poor of every sort from the country as the country breeds them. And thus the poor themselves shall find the provision, and other people the sweetness, of the abatement of the tax. Now if it be objected that houses of correction in all places have not done the good expected (as it cannot be denied but in most places they have done much good), it must be remembered that there is a great difference between that which is done by the distracted government of justices of peace, and that which may be done by a settled ordinance, subject to a regular visitation as this may be; and besides the want hath been, commonly, in houses of correction, of a competent and certain stock for the materials of the labour, which in this case may be likewise supplied.

Upon the subject of this paper Tenison, after observing that the event had showed that Bacon was mistaken when he called Sutton's scheme "a sacrifice without salt," adds:—"He proposed four other ends of that great heap of alms to the King's majesty. As first, the erection of a college for controversies for the encountering and refuting of papists. Secondly, the erection of a Receipt (for the word Seminary he refused to make use of) for converts from the persuasions of Rome to the Reformed religion. Thirdly, a settlement of stipends for itinerary preachers in places which needed them; as in Lancashire, where such care had been taken by Queen Elizabeth. And lastly, an increase of salary to the Professors in either University of this land. Where-

fore, his lordship manifesting himself not against the charity, but the manner of disposing it, it was not well done of those who have publicly defamed him by declaring their jealousies of bribery by the heir."

Respecting the very remarkable piece known as Bacon's 'Advice to Sir George Villiers,' Blackbourn says:—"I am to acquaint the reader that there are several copies of this performance:—the first, in 4to., as a single pamphlet, printed in 1661; the second, printed in Lloyd's *Worthies*, under the title of Buckingham, in the year 1670; and the third, in the *Cabala*. The second and third vary very little, inasmuch as they appear to be only two transcripts of one original; though they differ vastly from the first. But the worst circumstance in which they all agree is, that they are incorrect." As the copy in the *Cabala*, however, appeared in the second edition of that Collection published in 1663, as well as in the third published in 1691 (though not in the first published in 1654), it takes precedence over that given in Lloyd's *Worthies*. The title in the *Cabala* is, at full length:—"The Copy of a Letter conceived to be written to the late Duke of Buckingham when he first became a favourite to King James, by Sir Francis Bacon, afterwards Lord Verulam and Viscount St. Alban; containing some advices unto the Duke for his better direction in that eminent place of the Favourite; drawn from him at the entreaty of the Duke himself by much importunity." Blackbourn is puzzled by a passage which he conceives would imply that the paper had been written after the death of the Queen (in March, 1619); but the expression to which he refers—"when there is no queen or princess, *as now*"—may evidently be taken in two senses. The manner and substance, as well as the title, of the Letter show that it must have been addressed to Villiers in the early part of his career at court, or probably in 1615. It is upon the internal evidence, also, it must be confessed, that we are chiefly dependent in respect to the authorship; but it may be regarded as conclusive. Both the matter and the style have all the characteristics of

Bacon's mind and pen. Nor, unless we are to take exception to the mere recognition of such a place or office as that of the royal favourite, is there anything in the advice which Bacon here gives Villiers that can fairly be considered as discreditable to either. Among the most remarkable passages are some that occur only in the edition of 1661. One of these is:—"Remember, then, what your true condition is; the King himself is above the reach of his people, but cannot be above their censures; and you are his shadow, if either he commit an error, and is loth to avow it, but excuses it upon his ministers, of which you are first in the eye, or you commit the fault and have willingly permitted it, and must suffer for it: and so perhaps you may be offered a sacrifice to appease the multitude." Afterwards Villiers is thus addressed:—"You are as a new-risen star, and the eyes of all men are upon you; let not your own negligence make you fall like a meteor." And then the original edition of 1661 proceeds as follows:—

Remember well the great trust you have undertaken, you are as a continual sentinel always to stand upon your watch to give him true intelligence. If you flatter him you betray him; if you conceal the truth of those things from him, which concern his justice or his honour, although not the safety of his person, you are as dangerous a traitor to his state as he that riseth in arms against him. A false friend is more dangerous than an open enemy: kings are styled gods upon earth, not absolute, but *dixi, dii estis*; and the next words are *sed moriemini sicut homines*, they shall die like men, and then all their thoughts perish. They cannot possibly see all things with their own eyes nor hear all things with their own ears; they must commit many great trusts to their ministers. Kings must be answerable to God Almighty, to whom they are but vassals, for their actions and for their negligent omissions; but the ministers to kings, whose eyes, ears, and hands they are, must be answerable to God and man for the breach of their duties, in violation of their trusts, whereby they betray them. Opinion is a master-wheel in these cases: that courtier who obtained a boon of the emperor, that he might every morning at his coming into his presence humbly whisper him in the ear and say nothing, asked no unprofitable suit for himself, but

such a fancy raised only by opinion cannot be long lived, unless the man have solid worth to uphold it; otherwise, when once discovered, it vanisheth suddenly. But when a favourite in court shall be raised upon the foundation of merits, and together with the care of doing good service to the king shall give good dispatches to the suitors, then can he not choose but prosper.

The following passage is retained in the two later editions, that in the *Cabala* and that given by Lloyd:—

V. For peace and war, and those things which appertain to either; I in my own disposition and profession am wholly for peace, if please God to bless this kingdom therewith as for many years past he hath done; and,

1. I presume I shall not need to persuade you to the advancing of it, nor shall you need to persuade the king your master therein, for that he hath hitherto been another Solomon in this our Israel, and the motto which he hath chosen, *Beati pacifici*, shows his own judgment: but he must use the means to preserve it, else such a jewel may be lost.

2. God is the God of peace; it is one of his attributes, therefore by him alone we must pray, and hope to continue it: there is the foundation.

3. And the king must not neglect the just ways for it; justice is the best protector of it at home, and providence for war is the best prevention of it from abroad.

4. Wars are either foreign or civil; for the foreign war by the king upon some neighbour nation, I hope we are secure; the king in his pious and just disposition is not inclinable thereunto; his empire is long enough, bounded with the ocean, as if the very situation thereof had taught the king and people to set up their rests, and say *ne plus ultra*.

5. And for a war of invasion from abroad; only we must not be over-secure; that is the way to invite it.

6. But if we be always prepared to receive an enemy, if the ambition or malice of any should incite him, we may be very confident we shall long live in peace and quietness, without any attempts upon us.

7. To make the preparations hereunto the more assured: in the first place I will recommend unto you the case of our out-works, the navy royal and shipping of our kingdom, which are the walls thereof, and every great ship is an impregnable fort;

and our many safe and commodious ports and havens, in every of these kingdoms, are as the redoubts to secure them.

8. For the body of the ships, no nation of the world doth equal England for the oaken timber wherewith to build them; and we need not borrow of any other iron for spikes or nails to fasten them together; but there must be a great deal of providence used that our ship timber be not unnecessarily wasted.

9. But for tackling, as sails and cordage, we are beholden to our neighbours for them, and do buy them for our money; that must be foreseen and laid up in store against a time of need, and not sought for when we are to use them; but we are much to blame that we make them not at home; only pitch and tar we have not of our own.

10. For the true art of building of ships for burden and service both, no nation in the world exceeds us; ship-wrights and all other artisans belonging to that trade must be cherished and encouraged.

11. Powder and ammunition of all sorts we can have at home, and in exchange for other home commodities we may be plentifully supplied from our neighbours, which must not be neglected.

12. With mariners and seamen this kingdom is plentifully furnished; the constant trade of merchandising will furnish us at a need; and navigable rivers will repair the store, both to the navy royal and to the merchants, if they be set on work, and well paid for their labour.

13. Sea-captains, and commanders, and other officers must be encouraged, and rise by degrees, as their fidelity and industry deserve it.

The unfinished Dialogue entitled 'An Advertisement touching an Holy War, written in the year 1622,' was first published in the Second Part of the *Resuscitatio* (1670). It is preceded by an interesting Letter addressed 'To the Right Reverend Father in God, Lancelot Andrews, Lord Bishop of Winchester, and Counsellor of Estate to his Majesty,' which commences as follows:—

My Lord, Amongst consolations it is not the least to represent to a man's self like examples of calamity in others. For examples give a quicker impression than arguments, and besides, they certify us that which the Scripture also tendereth for satisfaction; that no new thing is happened unto us. This

they do the better, by how much the examples are liker in circumstances to our own case, and more especially, if they fall upon persons that are greater or worthier than ourselves. For as it savoureth of vanity to match ourselves highly in our own conceit, so on the other side it is a good sound conclusion, that if our betters have sustained the like events, we have the less cause to be grieved.

In this kind of consolation I have not been wanting to myself, though as a Christian I have tasted (through God's great goodness) of higher remedies. Having therefore, through the variety of my reading, set before me many examples both of ancient and later times, my thoughts, I confess, have chiefly stayed upon three particulars as the most eminent and the most resembling. All three persons that had held chief place of authority in their countries, all three ruined not by war or by any other disaster, but by justice and sentence as delinquents and criminals; all three famous writers, insomuch as the remembrance of their calamity is now as to posterity but as a little picture of night-work, remaining amongst the fair and excellent tables of their acts and works. And all three (if that were anything to the matter) fit examples to quench any man's ambition of rising again; for that they were every one of them restored with great glory, but to their further ruin and destruction, ending in a violent death. The men were Demosthenes, Cicero, and Seneca, persons that I durst not claim affinity with, except the similitude of our fortunes had contracted it. When I had cast mine eyes upon these examples, I was carried on further to observe how they did bear their fortunes, and principally how they did employ their times, being banished and disabled for public business; to the end that I might learn by them, and that they might be as well my counsellors as my comforters. Whereupon I happened to note how diversely their fortunes wrought upon them, especially in that point at which I did most aim, which was the employing of their times and pens. In Cicero I saw that during his banishment, which was almost two years, he was so softened and dejected as he wrote nothing but a few womanish epistles. And yet, in mine opinion, he had least reason of the three to be discouraged; for that although he was judged, and judged by the highest kind of judgment, in form of statute or law, that he should be banished, and his whole estate confiscated and seized, and his houses pulled down, and that it should be highly penal for any man to propound a repeal, yet his case

even then had no great blot of ignominy, for 'it was but a tempest of popularity which overthrew him. Demosthenes, contrarywise, though his case was foul, being condemned for bribery, and not simple bribery, but bribery in the nature of treason and disloyalty, yet nevertheless took so little knowledge of his fortune, as during his banishment he did much busy himself and intermeddle with matters of state, and took upon him to counsel the state (as if he had still been at the helm) by letters, as appears by some epistles of his which are extant. Seneca indeed, who was condemned for many corruptions and crimes, and banished into a solitary island, kept a mean, and though his pen did not freeze, yet he abstained from intruding into matters of business, but spent his time in writing books of excellent argument and use for all ages, though he might have made better choice sometimes of his dedications.

These examples confirmed me much in a resolution (whereunto I was otherwise inclined) to spend my time wholly in writing, and to put forth that poor talent, or half talent, for what it is, that God hath given me, not as heretofore to particular exchanges, but to banks or mounts of perpetuity which will not break.

Most of the remainder of the Letter we have already had occasion to quote or refer to. Bacon goes on to state that, having not long since set forth a part of his *Instauration*, which is that one of his works that he most esteems, he thinks "to proceed in some new parts thereof." He had received from foreign countries many testimonies respecting that work going as far as he could expect at the first in so abstruse an argument; nevertheless he had just cause to doubt that it flew too high over men's heads; his purpose, therefore, was, though he should break the order of time, "to draw it down to the sense by some patterns of a Natural Story and Inquisition." He had also thought it good to procure a translation of his *Advancement of Learning* into the general language, that is, Latin, that it might serve as some preparative or key for the better opening of the *Instauration*, "because," as he explains, "it exhibits a mixture of new conceits and old, whereas the *Instauration* gives the new unmixed, otherwise than with

some little aspersion of the old for taste's sake." This translation, which was not without great and ample additions, and enrichment of the original English, especially in the Second Book, might stand, he held, in lieu of the First Part of the *Instauration*, and acquit the promise he had made in regard to that portion of the work. "Again," he continues, "because I cannot altogether desert the civil person [i.e. character] that I have borne; which if I should forget enough would remember; I have also entered into a work touching Laws, propounding a character of justice in a middle term between the speculative and reverend discourses of philosophers and the writings of lawyers, which are tied and obnoxious to their particular law." He has left no work, however, either completed or even commenced, to which this description is applicable. The purpose that he had once had, he says, of making a particular digest, or reconciliation, of the laws of his own nation, he had laid aside, as being a work not to be accomplished by his own unaided forces and pen. He had thought also that he owed in duty something to his country, which he had ever loved; "insomuch," he says, "as, although my place hath been far above my desert, yet my thoughts and cares concerning the good thereof were beyond and over and above my place;" so now, being as he was, no more able to do his country service, it remained to him to do it honour; and that he had endeavoured to do in his *History of King Henry the Seventh*. As for his *Essays*, and some other pieces of that nature, he counted them but as the recreations of his other studies, and as such it was his purpose to continue them; "though I am not ignorant," he adds, "that those kind of writings would, with less pains and embracement perhaps, yield more lustre and reputation to my name than those other which I have in hand." The Letter concludes thus:—"But, revolving with myself my writings, as well those which I have published as those which I have in hand, methought they went all into the city, and none into the temple; where, because I have found so great consolation, I

desire likewise to make some poor oblation. Therefore I have chosen an argument mixed of religious and of considerations; and likewise mixed between contemplative and active. For who can tell whether the may not be an *Exoriare aliquis*?* Great matter especially if they be religious, have, many times, small beginnings: and the platform may draw on the building. This work, because I was ever an enemy of flattering dedications, I have dedicated to your lordship in respect of our ancient and private acquaintance; and because amongst the men of our times I hold you in special reverence. Your Lordship's loving friend, FR. ST. ALBAN."

By a holy war Bacon means a war or crusade against the Turks. The persons by whom the discussion is carried on are six in number; namely, Eusebius, a moderate divine; Gamaliel, a Protestant zealot; Zebedaeus, a Roman Catholic zealot; Martius, a military man; Eupolis, a politician; Pollio, a courtier. The most interesting part of the dialogue, so far as it goes, is the earlier part of it, which is as follows:—

There met at Paris, in the house of Eupolis, Eusebius, Zebedaeus, Gamaliel, Martius, all persons of eminent quality, but of several dispositions. Eupolis himself was also present, and while they were set in conference Pollio came in to them from court, and as soon as he saw them, after his witty and pleasant manner, he said:

Pollio.—Here be four of you, I think, were able to make a good world, for you are as differing as the four elements, and yet you are friends. As for Eupolis, because he is temperate and without passion, he may be the fifth essence.

Eupolis.—If we five, Pollio, make the great world, you alone make the little, because you profess and practise both to

* In allusion to the dying imprecation of Dido, in the Fourth *Æneid*—

"Exoriare aliquis nostris ex ossibus ultor," &c.

"Rise some avenger of our Libyan blood;

With fire and sword pursue the perjured brood."

Dryden.

refer all things to yourself. *Pollio*.—And what do they that practise it and profess it not? *Eupolis*.—They are the less hardy and the more dangerous. But come and sit down with us, for we were speaking of the affairs of Christendom at this day, wherein we would be glad also to have your opinion. *Pollio*.—My Lords, I have journeyed this morning, and it is now the heat of the day, therefore your Lordship's discourses had need content my ears very well, to make them entreat mine eyes to keep open. But yet if you will give me leave to awake you when I think your discourses do but sleep, I will keep watch the best I can. *Eupolis*.—You cannot do us a greater favour. Only I fear you will think all our discourses to be but the better sort of dreams, for good wishes without power to effect are not much more. But, sir, when you came in, *Martius* had both raised our attentions and affected us with some speech he had begun, and it falleth out well to shake off your drowsiness, for it seemed to be the trumpet of a war. And therefore, *Martius*, if it please you begin again, for the speech was such as deserveth to be heard twice, and I assure you your auditory is not a little amended by the presence of *Pollio*. *Martius*.—When you came in, *Pollio*, I was saying freely to these lords, that I had observed how, by the space now of half a century of years, there had been (if I may speak it) a kind of meanness in the designs and enterprises of Christendom. Wars with subjects, like an angry suit for a man's own that might be better ended by accord. Some petty acquests of a town, or a spot of territory, like a farmer's purchase of a close or nook of ground that lay fit for him. And although the wars had been for a Naples, or a Milan, or a Portugal, or a Bohemia, yet these wars were but the wars of heathens (of Athens, or Sparta, or Rome) for secular interest or ambition, not worthy the warfare of Christians. The Church, indeed, maketh her missions into the extreme parts of the nations and isles, and it is well; but this is *ecce unus gladius hic*. The Christian princes and potentates are they that are wanting to the propagation of the faith by their arms. Yet our Lord that said on earth to the disciples, *Ite et praedicate*, said from heaven to Constantine, *In hoc signo vince*. What Christian soldier is there that will not be touched with a religious emulation to see an order of Jesus, or of Saint Francis, or of Saint Augustine, do such service for enlarging the Christian borders, and an order of Saint Jago, or Saint Michael, or Saint George, only to robe and feast, and perform rites and ob-

servances? Surely the merchants themselves shall rise in judgment against the princes and nobles of Europe, for they have made a great path in the seas, unto the ends of the world, and set forth ships and forces of Spanish, English, and Dutch, enough to make China tremble, and all this for pearl or stone, or spices, but for the pearl of the kingdom of heaven, or the stones of the heavenly Hierusalem, or the spices of the Spouse's garden, not a mast hath been set up. Nay, they can make shift to shed Christian blood, so far off amongst themselves, and not a drop for the cause of Christ. But let me recall myself; I must acknowledge that within the space of fifty years, whereof I spake, there have been three noble and memorable actions upon the infidels, wherein the Christian hath been the invader. For where it is upon the defensive, I reckon it a war of nature and not of piety. The first was that famous and fortunate war by sea, that ended in the victory of Lepanto, which hath put a hook into the nostrils of the Ottomans to this day, which was the work chiefly of that excellent pope, Pius Quintus, whom I wonder his successors have not declared a saint. The second was the noble, though unfortunate expedition of Sebastian, King of Portugal, upon Afric, which was achieved by him alone, so alone, as left somewhat for others to excuse. The last was the brave incursion of Sigismund, the Transylvanian prince, the thread of whose prosperity was cut off by the Christians themselves, contrary to the worthy and paternal monitories of Pope Clement the Eighth. More than these I do not remember. *Pollio*.—No! What say you to the extirpation of the Moors of Valentia? At which sudden question Martius was a little at a stop, and Gamaliel prevented him, and said: *Gamaliel*.—I think Martius did well in omitting that action, for I, for my part, never approved it, and it seems God was not well pleased with that deed, for you see the King in whose time it passed (whom you Catholics count a saint-like and immaculate prince) was taken away in the flower of his age, and the author and great counsellor of that rigour (whose fortunes seem to be built upon the rock) is ruined; and it is thought by some, that the reckonings of that business are not yet cleared with Spain; for that numbers of those supposed Moors, being tried now by their exile, continue constant in the faith, and true Christians in all points save in the thirst of revenge. *Zebedaeus*.—Make not hasty judgment, Gamaliel, of that great action which was as Christ's fan in those countries, except you

could show some such covenant from the crown of Spain as Joshua made with the Gibeonites, that that cursed seed should continue in the land. And you see it was done by edict, not tumultuously; the sword was not put into the people's hands. *Eupolis*.—I think Martius did omit it not as making any judgment of it either way, but because it sorted not aptly with action of war, being upon subjects, and without resistance. And let us, if you think good, give Martius leave to proceed in his discourse, for methought he spake like a divine in armour. *Martius*.—It is true, *Eupolis*, that the principal object which I have before mine eyes in that whereof I speak is piety and religion. But nevertheless, if I should speak only as a natural man, I should persuade the same thing. For there is no such enterprise at this day for secular greatness and terrene honour as a war upon infidels. Neither do I in this propound a novelty or imagination, but that which is proved by late examples of the same kind, though perhaps of less difficulty. The Castilians, the age before that wherein we lived, opened the new world, and subdued and planted Mexico, Peru, Chili, and other parts of the West Indies. We see what floods of treasure have flowed into Europe by that action, so that the cense or rates of Christendom are raised since ten times, yea, twenty times told. Of this treasure, it is true, the gold was accumulate and store treasure for the most part, but the silver is still growing. Besides infinite is the access of territory and empire by the same enterprise. For there was never an hand drawn that did double the rest of the habitable world before this, for so a man may truly terrify it, if he shall put to account as well that that is, as that which may be hereafter by the further occupation and colonizing of those countries. And yet it cannot be affirmed (if one speak ingenuously) that it was the propagation of the Christian faith that was the adamant of that discovery, entry, and plantation, but gold and silver, and temporal profit, and glory, so that what was first in God's providence was but second in man's appetite and intention. The like may be said of the famous navigations and conquests of Emanuel, King of Portugal, whose arms began to circle Afric and Asia, and to acquire not only the trade of spices, and stores, and musk, and drugs, but footing and places in those extreme parts of the East. For neither in this was religion the principal, but amplification and enlargement of riches and dominion. And the effect of these two enterprises is now such that both the East and the West Indies being met in

the crown of Spain, it is come to pass that as one saith in a brave kind of expression, the sun never sets in the Spanish dominions, but ever shines upon one part or other of them, which to say truly, is a beam of glory, though I cannot say it is so solid a body of glory wherein the crown of Spain surpasseth all the former monarchies. So as to conclude, we may see that in these actions upon Gentiles or Infidels, only or chiefly, both the spiritual and temporal, honour and good, have been in our pursuit and purpose conjoined. *Pollio*.—Methinks, with your favour, you should remember, *Martius*, that wild and savage people are like beasts and birds, which are *ferae naturae*, the property of which passeth with the possession, and goeth to the occupant, but of civil people it is not so. *Martius*.—I know no such difference amongst reasonable souls, but that whatsoever is in order to the greatest and most general good of people may justify the action, be the people more or less civil. But, *Eupolis*, I shall not easily grant that the people of Peru or Mexico were such brute savages as you intend, or that there should be any such difference between them and many of the infidels which are now in other parts. In Peru, though they were unparalleled people, according to the clime, and had some customs very barbarous, yet the government of the Incas had many parts of humanity and civility. They had reduced the nations from the adoration of a multitude of idols and fancies to the adoration of the sun. And as I remember, the Book of Wisdom noteth degrees of idolatry, making that of worshipping petty and vile idols more gross than simply the worshipping of the creature. And some of the prophets, as I take it, do the like in the metaphor of more ugly and bestial fornication. The Peruvians also, under the Incas, had magnificent temples of their superstition, they had strict and regular justice, they bare great faith and obedience to their kings, they proceeded in a kind of martial justice with their enemies, offering them their law, as better for their own good, before they drew their sword. And much like was the state of Mexico, being an elective monarchy. As for those people of the East (Goa, Calacute, Malacca), they were a fine and dainty people, frugal and yet elegant, though not military. So that if things be rightly weighed, the empire of the Turks may be truly affirmed to be more barbarous than any of these. A cruel tyranny, bathed in the blood of their emperors upon every succession, a heap of vassals and slaves, no nobles, no gentlemen, no free men, no inheritance of land,

no stirp or ancient families, a people that is without natural affection, and, as the Scripture saith, that regardeth not the desires of women, and without piety or care towards their children, a nation without morality, without letters, arts, or sciences, that can scarce measure an acre of land, or an hour of the day, base and sluttish in buildings, diets, and the like, and in a word a very reproach of human society, and yet this nation hath made the garden of the world a wilderness, for that, as it is truly said concerning the Turks, where Ottoman's horse sets his foot people will come up very thin.

Attached to this dialogue is a short fragment printed by Tenison in the *Baconiana*, entitled 'The Lord Bacon's Questions about the Lawfulness of a War for the Propagation of Religion.' Bacon's own heading of the paper appears to have been, 'Questions wherein I desire opinion, joined with arguments and authorities.'

Perhaps the most spirited and eloquent of all Bacon's political writings is his last, entitled 'Considerations concerning a War with Spain, inscribed to Prince Charles, anno 1624.' It is printed in the Second Part of the *Resuscitatio*. The war with Spain, into which he succeeded in plunging the country as soon as Charles became King in the beginning of the following year, was at this moment the great object upon which Buckingham was bent; and the present tract was probably prepared at the instigation of the favourite, or at least with the view of aiding and gratifying him. But, whatever we may think either of the motives by which Bacon may have been actuated or of the wisdom or true patriotism of the policy which he recommends, it is impossible to read the present paper without admiration of its brilliancy as a piece of writing, and of the vital force and buoyancy with which the old man has filled it. "Your Highness," it gracefully begins, "hath an imperial name. It was a Charles that brought the empire first into France; a Charles that brought it first into Spain: why should not Great Britain have its turn?" He then sets himself in the first place to maintain the justice of the proposed war. It will be waged, he contends, not for the Palatinate only, though that may

be the more immediate object, "but for England, Scotland, Ireland, our King, our prince, our nation, all that we have." It is the overgrowing greatness of the Spaniards that is its true cause and justification:—

And to say truth, if one mark it well, this was in all memory the main piece of wisdom in strong and prudent counsels, to be in perpetual watch that the states about them should neither by approach, nor by increase of domiuiou, nor by ruining confederates, nor by blocking of trade, nor by any the like means, have it in their power to hurt or annoy the states they serve, and whensoever any such cause did but appear straightways to buy it out with a war, and never take up peace at credit and upon interest. It is so memorable, as it is yet as fresh as if it were done yesterday, how that triumvirate of kings, Henry VIII. of England, Francis I. of France, and Charles V. Emperor and King of Spain, were in their times so provident as scarce a palm of ground could be gotten by either of the three, but that the other two would be sure to do their best to set the balance of Europe upright again.

And the like diligence was used in the age before by that league wherewith Guiccardine beginneth his story, and maketh it as it were the calendar of the good days of Italy, which was contracted between Ferdinando, King of Naples, Lorenzo of Medici, Potentate of Florence, and Ludovico Sforza, Duke of Milan, designed chiefly against the growing power of the Veuetians, but yet so as the confederates had a perpetual eye one upon another that none of them should overtop. To conclude therefore, howsoever some schoolmen (otherwise reverend men, yet fitter to guide penknives than swords) seem precisely to stand upon it that every offensive war must be *ultio*, a revenge that presupposeth a precedent assault or injury, yet neither do they descend to this point which we now handle of a just fear, neither are they of authority to judge this question against all the precedents of time. For certainly as long as men are men (the sons, as the poets allude, of Prometheus, and not of Epimetheus), and as long as reason is reason, a just fear will be a just cause of a preventive war, but especially if it be part of the case that there is a nation that is manifestly detected to aspire to monarchy and new acquests, then other states assuredly cannot be justly accused for not staying for the first blow, or for not accepting Polyphemus' courtesy to be the last that shall be eaten up. . . .

Is it nothing that the crown of Spain hath enlarged the bounds thereof within the last six score years much more than the Ottomans? I speak not of matches or unions, but of arms, occupations, invasions. Granada, Naples, Milan, Portugal, the East and West Indies, all these are actual additions to that crown. They had a mind to French Britain, the lower part of Picardy and Piedmont, but they have let fall their bit. They have to this day such a hovering possession of the Valtoline, as an hobby hath over a lark, and the Palatinate is in their talons, so that nothing is more manifest than that this nation of Spain runs a race still of empire, when all other states of Christendom stand in effect at a stay. Look then a little further into the titles whereby they have acquired and do now hold these new portions of their crown, and you will find them of so many varieties, and such natures, to speak with due respect, as may appear to be easily minted, and such as can hardly at any time be wanting. And therefore so many new conquests and purchases, so many strokes of the alarm-bell of fear, and awaking to other nations, and the facility of the titles which hand over head have served their turn, doth ring the peal so much the sharper and the louder.

Afterwards passing to the second part of his argument, he contends that, in every instance hitherto in which the two nations had encountered, England had come off with the advantage;—in the Netherlands in the year 1578, on that famous Lammas-day when the reputation of Don John of Austria was overthrown and buried, chiefly by the prowess and virtue of the English and Scottish troops under the conduct of Sir John Norris and Sir Robert Stuart; in 1580, when they were driven out of Ireland by Lord Grey, and the garrison which they had placed there in their Fort del Or compelled to yield themselves prisoners; in 1582, when Sir John Norris effected his memorable retreat from Ghent in spite of the opposition of the Prince of Parma and the entire Spanish army; in the expedition of Drake and Carlisle to the West Indies in 1585; in Drake's expedition to Cadiz in 1587—which last enterprise, Bacon says, he remembers, Drake, in the vaunting style of a soldier, would call the singeing of the King of Spain's beard. Then he proceeds:—

The enterprise of eighty-eight deserveth to be stood upon a little more fully, being a miracle of time. There armed from Spain in the year 1588 the greatest navy that ever swam upon the sea. For though there have been far greater fleets for number, yet for the bulk and building of the ships, with the furniture of great ordnance and provisions, never the like. The design was to make not an invasion only, but an utter conquest of this kingdom. The number of vessels were one hundred and thirty, whereof galliases and galleons seventy-two, goodly ships like floating towers or castles, manned with thirty thousand soldiers and mariners. This navy was the preparation of five whole years at the least. It bare itself also upon divine assistance, for it received special blessing from Pope Sixtus, and was assigned as an Apostolical mission, for the reducement of this kingdom to the obedience of the see of Rome. And in further token of this holy warfare, there were amongst the rest of these ships twelve called by the name of the twelve Apostles. But it was truly conceived that this kingdom of England could never be overwhelmed, except the land waters came in to the sea-tides. Therefore was there also in readiness, in Flanders, a mighty strong army of land-forces to the number of fifty thousand veteran soldiers, under the conduct of the Duke of Parma, the best commander next the French King, Henry the Fourth, of his time. These were designed to join with the forces at sea, there being prepared a number of flat-bottomed boats to transport the land-forces under the wing and protection of the great navy. For they made no account but that the navy should be absolute master of the seas. Against these forces there were prepared on our part to the number of near one hundred ships, not so great of bulk, indeed, but of a more nimble motion and more serviceable, besides a less fleet of thirty ships for the custody of the narrow seas. There were also in readiness at land two armies, besides other forces, to the number of ten thousand, dispersed amongst the coast towns in the southern parts. The two armies were appointed, one of them consisting of twenty-five thousand horse and foot, for the repulsing of the enemy at their landing, and the other twenty-five thousand for safeguard and attendance about the court and the Queen's person. There were also other dormant musters of soldiers throughout all parts of the realm, that were put in readiness but not drawn together. The two armies were assigned to the leading of two generals, noble persons, but both of them rather courtiers and assumed

to the state, than martial men, yet lined and assisted with subordinate commanders of great experience and valour. The fortune of the war made this enterprise at first a play at base. The Spanish navy set forth out of the Groyne in May, was dispersed and driven back by weather. Our navy set forth somewhat later out of Plymouth, and bare up towards the coast of Spain to have fought with the Spanish navy, and partly by reason of contrary winds, partly upon advertisement that the Spaniards were gone back, and upon some doubt also that they might pass by towards the coast of England whilst we were seeking them afar off, returned likewise into Plymouth about the middle of July. At that time came more confident advertisement, though false, not only to the Lord Admiral but to the court, that the Spaniards could not possibly come forward that year, whereupon our navy was upon the point of disbanding, and many of our men gone ashore. At which very time the Invincible Armada (for so it was called in a Spanish ostentation throughout Europe) was discovered upon the western coast. It was a kind of surprise, for that, as was said, many of our men were gone to land, and our ships ready to depart. Nevertheless the Admiral, with such ships only as could suddenly be put in readiness, made forth towards them, insomuch as of one hundred ships there came scarce thirty to work. Howbeit with them and such as came daily in, we set upon them and gave them the chase. But the Spaniards, for want of courage, which they call commission, declined the fight, casting themselves continually into roundels, their strongest ships walling in the rest, and in that manner they made a flying march towards Calais. Our men by the space of five or six days followed them close, fought with them continually, made great slaughter of their men, took two of their great ships, and gave divers others of their ships their death's wounds, whereof soon after they sank and perished, and in a word distressed them almost in the nature of a defeat, we ourselves in the meantime receiving little or no hurt. Near Calais the Spaniards anchored, expecting their land forces, which came not. It was afterwards alleged that the Duke of Parma did artificially delay his coming. But this was but an invention and pretension given out by the Spaniards, partly upon a Spanish envy against that duke being an Italian, and his son a competitor to Portugal, but chiefly to save the monstrous scorn and disreputation which they and their nation received by the success of that enterprise. Therefore their colours and

excuse forsooth were, that their general by sea had a limited commission not to fight until the land forces were come in to them, and that the Duke of Parma had particular reaches and ends of his own, underhand, to cross the design. But it was both a strange commission and a strange obedience to a commission for men in the midst of their own blood, and being so furiously assailed, to hold their hands contrary to the laws of nature and necessity. And as for the Duke of Parma, he was reasonably well tempted to be true to that enterprise by no less promise than to be made a feudatory or beneficiary king of England, under the seignory in chief of the Pope, and the protection of the King of Spain. Besides, it appeared that the Duke of Parma held his place long after in the favour and trust of the King of Spain by the great employments and services that he performed in France; and again it is manifest that the duke did his best to come down and to put to sea: the truth was, that the Spanish navy, upon those proofs of fight that they had with the English, finding how much hurt they received, and how little hurt they did, by reason of the activity and low building of our ships and skill of our seamen, and being also commanded by a general of small courage and experience, and having lost at the first two of their bravest commanders at sea, Pedro de Valdez and Michael de Oquenda, durst not put it to a battle at sea, but set up their rest wholly upon the land enterprise. On the other side, the transporting of the land forces failed in the very foundation; for, whereas the Council of State made full account that their navy should be master of the sea, and therefore able to guard and protect the vessels of transportation, when it fell out to the contrary that the great navy was distressed, and had enough to do to save itself; and again, that the Hollanders impounded their land forces with a brave fleet of thirty sail, excellently well appointed;—things, I say, being in this state, it came to pass that the Duke of Parma must have flown if he would have come into England, for he could get neither bark nor mariner to put to sea; yet certain it is that the duke looked still for the coming back of the Armada, even at that time, when they were wandering and making their perambulation upon the northern seas. But, to return to the Armada, which we left anchored at Calais: from thence, as Sir Walter Raleigh was wont prettily to say, they were suddenly driven away with squibs, for it was no more but a stratagem of fire-boats, manless, and sent upon them by the favour of the wind in the night time,

that did put them in such terror as they cut their cables and left their anchors in the sea. After, they hovered some two or three days about Graveling, and there again were beaten in a great fight, at what time our second fleet, which kept the narrow seas, was come in and joined to our main fleet. Thereupon, the Spaniards entering into further terror, and finding also divers of their ships every day to sink, lost all courage, and, instead of coming up into the Thames mouth for London, as their design was, fled on towards the north to seek their fortunes, being still chased by the English navy at the heels, until we were fain to give them over for want of powder. The breath of Scotland the Spaniards could not endure, neither durst they as invaders land in Ireland, but only ennobled some of the coasts thereof with shipwrecks; and so going northwards as long as they had any doubt of being pursued, at last, when they were out of reach, they turned and crossed the ocean to Spain, having lost fourscore of their ships and the greater part of their men. And this was the end of that sea-giant, the Invincible Armada, which, having not so much as fired a cottage of ours at land, nor taken a cock-boat of ours at sea, wandered through the wilderness of the northern seas, and, according to the curse in the Scriptures, came out against us one way and fled before us seven ways: serving only to make good the judgment of an astrologer long before given, *octogesimus octavus mirabilis annus*, or rather to make good, even to the astonishment of all posterity, the wonderful judgments of God poured down commonly upon vast and proud aspirings.

In the year 1591 was that memorable fight of an English ship called the *Revenge*, under the command of Sir Richard Greenvil, memorable, I say, even beyond credit, and to the height of some heroical fable. And though it were a defeat, yet it exceeded a victory, being like the act of Samson that killed more men at his death than he had done in the time of all his life. This ship for the space of fifteen hours sat like a stag among hounds at the bay, and was seized and fought with in turn by fifteen great ships of Spain, part of a navy of fifty-five ships in all; the rest, like abettors, looking on afar off. And amongst the fifteen ships that fought, the great *St. Philip* was one, a ship of fifteen hundred ton, prince of the twelve sea-apostles, which was right glad when she was shifted off from the *Revenge*. This brave ship, the *Revenge*, being manned only with two hundred soldiers and mariners, whereof eighty lay

sick, yet nevertheless, after a fight maintained, as was said, of fifteen hours, and two ships of the enemy sunk by her side, besides many more torn and battered, and great slaughter of men, never came to be entered, but was taken by composition; the enemies themselves having in admiration the virtue of the commander and the whole tragedy of that ship.

In the year 1601 followed the battle of Kinsale in Ireland. By this Spanish invasion of Ireland, which was in September that year, a man may guess how long time a Spaniard will live in Irish ground, which is a matter of a quarter of a year, or four months at most; for they had all the advantages in the world, and no man could have thought, considering the small forces employed against them, that they could have been driven out so soon. They obtained, without resistance, in the end of September the town of Kinsale; a small garrison of 150 English leaving the town upon the Spaniards' approach, and the townsmen receiving the foreigners as friends. The number of Spaniards that put themselves into Kinsale was 2000 men, soldiers of old bands, under the command of Don Juan d'Aquila, a man of good valour. The town was strong of itself, neither wanted there any industry to fortify it on all parts, and make it tenable according to the skill and discipline of Spanish fortification. At that time the rebels were proud, being encouraged upon former successes; for though the then deputy, the Lord Mountjoy, and Sir George Carew, President of Munster, had performed divers good services to their prejudice, yet the defeat they had given the English at Blackwater not long before, and their treaty, too much to their honour, with the Earl of Essex, was yet fresh in their memory. The Deputy lost no time, but made haste to have recovered the town before new succours came, and sat down before it in October, and laid siege to it by the space of three winter months or more, during which time sallies were made by the Spaniards, but they were beaten in with loss. In January came fresh succours from Spain, to the number of 2000 more, under the conduct of Alonzo d'Ocampo. Upon the comforts of these succours Tyrone and Odonnell drew up their forces together to the number of 7000, besides the Spanish regiments, and took the field, resolved to rescue the town and to give the English battle. So here was the case: an army of English of some 6000, wasted and tried with a long winter siege, engaged in the midst between an army of a greater number than themselves, fresh and in vigour, on the one side, and a town strong

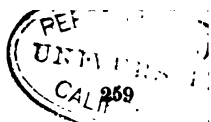
in fortification and strong in men on the other. But what was the event? This, in few words: that after the Irish and Spanish forces had come on and showed themselves in some bravery, they were content to give the English the honour as to charge them first; and when it came to the charge, there appeared no other difference between the valour of the Irish rebels and the Spaniards, but that the one ran away before they were charged, and the other straight after. And again, the Spaniards that were in the town had so good memories of their losses in their former sallies, as the confidence of an army which came for their deliverance could not draw them forth again. To conclude, there succeeded an absolute victory for the English, with the slaughter of above 2000 of the enemy, the taking of nine ensigns, whereof six Spanish, the taking of the Spanish general d'Ocampo prisoner, and this with the loss of so few of the English as is scarce credible, being, as hath been rather confidently than credibly reported, but of one man, the cornet of Sir Richard Graeme, though not a few hurt. There followed immediately after the defeat a present yielding up of the town by composition, and not only so, but an avoiding, by express articles of treaty accorded, of all other Spanish forces throughout all Ireland, from the places and nests where they had settled themselves in greater strength, as in regard of the natural situation of the places, than that was of Kinsale; which were Castlehaven, Baltimore, and Beervhaven. Indeed they went away with sound of trumpet, for they did nothing but publish and trumpet all the reproaches they could devise against the Irish land and nation, insomuch as d'Aquila said in open treaty, that, when the Devil upon the mount did show Christ all the kingdoms of the earth and the glory of them, he did not doubt but the Devil left out Ireland, and kept it for himself.

There is a short paper in Stephens's Second Collection entitled 'Notes of a Speech concerning a War with Spain,' which appears in the greater part to be only a rough draught of the 'Considerations;' but the following rapid summary is distinguished both by its spirit and its finish:—

You do not find that for this age, take it for a hundred years, there was ever any encounter between Spanish and English of importance, either by sea or land, but the English came off with the honour: witness, the Lammass-day, the

retreat of Gaunt, the battle of Nieuport, and some others : but there have been some actions, both by sea and land, so memorable as scarce suffer the less to be spoken of. By sea, that of eighty-eight, when the Spaniards, putting themselves most upon their stirrups, sent forth that invincible armada which should have swallowed up England quick ; the success whereof was, that, although that fleet swam like mountains upon our seas, yet they did not so much as take a cock-boat of ours at sea, nor fire a cottage at land, but came through our channel, and were driven, as Sir Walter Raleigh says, by squibs (fire-boats he means) from Calais, and were soundly beaten by our ships in fight, and many of them sunk ; and finally durst not return the way they came, but made a scattered perambulation, full of shipwrecks, by the Irish and Scottish seas, to get home again : just according to the curse of the Scripture, "that they came out against us one way, and fled before us seven ways." By land, who can forget the two voyages made upon the continent itself of Spain, that of Lisbon, and that of Cales ; when, in the former, we knocked at the gates of the greatest city either of Spain or Portugal, and came off without seeing an enemy to look us in the face ? And though we failed in our foundation, for that Antonio, whom we thought to replace in his kingdom, found no party at all, yet it was a true trial of the gentleness of Spain which suffered us to go and come without any dispute. And for the latter, of Cales, it ended in victory ; we ravished a principal city of wealth and strength in the high countries, sacked it, fired the Indian fleet that was in the port, and came home in triumph ; and yet to this day were never put in suit for it, nor demanded reasons for our doings. You ought not to forget the battle of Kinsale, in Ireland, what time the Spanish forces were joined with the Irish—good soldiers as themselves, or better—and exceeded us far in numbers, and yet they were soon defeated, and their general, d'Avila, taken prisoner ; and that war, by that battle, quenched and ended.

And it is worthy to be noted how much our power in those days was inferior to our present state. Then, a lady old and owner only of England, entangled with the revolt of Ireland, and her confederates of Holland much weaker and in no conjuncture. Now, a famous king, and strengthened with a prince of singular expectation, and in the prime of his years, owner of the entire isle of Britain, enjoying Ireland populate and quiet, and infinitely more supported by confederates of



the Low Countries, Denmark, divers of the princes of Germany, and others. As for the comparison of Spain, as it was then and as it is now, you will for good respects forbear to speak; only you will say this, that Spain was then reputed to have the wisest council of Europe, and not a council that will come at the whistle of a favourite.

The remaining pieces that come under the head of Bacon's Political Writings are the following:—'Speech in Parliament, 39 of Elizabeth [1597], upon the motion of Subsidy,' printed in the First Part of the *Resuscitatio* (1657); 'A Proclamation drawn for his Majesty's First Coming in [1603], prepared but not used,' in Stephens's Second Collection (1734); 'A Draught of a Proclamation touching his Majesty's Style, 2do Jacobi [1604], prepared, not used,' in Stephens's Second Collection; 'A Speech made by Sir Francis Bacon, Knight, chosen by the Commons to present a Petition touching Purveyors; delivered to his Majesty in the Withdrawing-Chamber at Whitehall, in the Parliament held 1mo et 2do Jacobi [1603], the First Session,' in the First Part of the *Resuscitatio*; 'A Speech used by Sir Francis Bacon, Knight, in the Honourable House of Commons, 5to Jacobi [Feb. 14th, 1607], concerning the article of the General Naturalization of the Scottish Nation,' in the First Part of the *Resuscitatio*; 'A Speech used by Sir Francis Bacon, Knight, in the Lower House of Parliament, by occasion of a motion concerning the Union of Laws' [1606 or 1607?], in the First Part of the *Resuscitatio*; 'A Report made by Sir Francis Bacon, Knight, in the House of Commons, of a Speech delivered by the Earl of Salisbury, and another Speech delivered by the Earl of Northampton, at a Conference concerning the Petition of the Merchants upon the Spanish Grievances, Parliament 5to Jacobi' [1607], in the First Part of the *Resuscitatio*; 'A Certificate to his Majesty, touching the Projects of Sir Stephen Proctor relating to the Penal Laws,' in Stephens's Second Collection; 'A Speech used to the King by his Majesty's Solicitor, being chosen by the Commons as their mouth and messenger for the presenting to his Majesty the Instrument or Writing of their

Grievances, in the Parliament 7 Jacobi' [1609], in the First Part of the *Resuscitatio*; 'A Speech of the King's Solicitor, used unto the Lords at a Conference, by commission from the Commons, moving and persuading the Lords to join with the Commons in Petition to the King to obtain liberty to treat of a Composition with his Majesty for Wards and Tenures, in the Parliament 7 Jacobi' [1609], in the First Part of the *Resuscitatio*; 'A Frame of Declaration for the Master of the Wards at his First Sitting,' in Stephens's Second Collection; 'Directions for the Master of the Wards to observe for his Majesty's better service and the general good' [issued after February 1611], in Stephens's Second Collection; 'A Speech of the King's Solicitor, persuading the House of Commons to desist from farther question of receiving the King's Messages by their Speaker, and from the body of the Council, as well as from the King's person, in the Parliament 7 Jacobi' [1609], in the First Part of the *Resuscitatio*; 'An Argument of Sir Francis Bacon, the King's Solicitor, in the Lower House of Parliament, proving the King's Right of Impositions on Merchandises Imported and Exported' [must have been delivered in 1610, but evidently imperfect], in Stephens's Second Collection; 'A Brief Speech in the end of the Session of Parliament 7 Jacobi [1609], persuading some supply to be given to his Majesty, which seemed then to stand upon doubtful terms, and passed upon this Speech,' in the First Part of the *Resuscitatio*; 'A Certificate to the Lords of the Council, upon information given touching the Scarcity of Silver at the Mint, and reference to the two Chancellors and the King's Solicitor' [between A.D. 1607 and 1612], in Stephens's Second Collection; 'A Speech delivered by the King's Attorney, Sir Francis Bacon, in the Lower House, when the House was in great heat, and much troubled about the Undertakers; which were thought to be some able and forward gentlemen, who, to ingratiate themselves with the King, were said to have undertaken that the King's business should pass in that House as his Majesty could wish; in the Parliament 12 Jacobi' [1614], in the First Part of the *Resus-*

citatio; 'His Lordship's Speeches in the Parliament, being Lord Chancellor, to the Speaker's Excuse, and to the Speaker's Oration' [1621], in the First Part of the *Resuscitatio*.

Most of these Speeches are strongly marked with the impression of Bacon's peculiar intellect, and there is scarcely one of them that does not contain something interesting or striking; but the limits to which we are confined make any further account of them impossible in the present work.

Nor with regard to Bacon's LETTERS can we do more than merely enumerate the several published collections of them in the order of their appearance. All Bacon's Letters that have yet seen the light have been originally given, we believe, in the following publications:—1. 'Cabala, sive Scrinia Sacra,' Part I., 4to. Lon. 1654; 2. The Same, Part II., 4to. Lon. 1654; 3. 'Resuscitatio,' Part I., fol. Lon. 1657; 4. 'A Collection of Letters made by Sir Tobie Mathews, Knt.,' 8vo. Lon. 1660; 5. 'Cabala,' Second Edition, fol. Lon. 1663; 6. 'Resuscitatio,' Part II., fol. Lon. 1670 and 1671; 7. 'Baconiana,' 8vo. Lon. 1679; 8. 'Cabala,' Third Edition, folio. Lon. 1691; 9. Stephens's First Collection, 4to. Lon. 1702; 10. Stephens's Second Collection, 4to. Lon. 1734; 11. 'Letters, Speeches, Charges, Advices, &c., of Francis Bacon, Lord Viscount St. Alban, Lord Chancellor of England; by Thomas Birch, D.D.,' 8vo. Lon. 1763. The Letters that have been collected from these various sources may amount to somewhere about seven hundred in all; but many others still remain in manuscript. Bacon's Letters are all deserving of preservation, either for the worth of the matter in them on its own account, or for the illustration they throw upon his other writings, upon the character of his mind, upon the history of his life, or upon that of his age; and we have reason to believe that the world may ere long expect an edition of all of them that can now be recovered, from a gentleman in the highest degree qualified to do justice to the task he has undertaken. That publication,

we have no doubt, will be recognised when it appears as by far the most important contribution that has yet been made to the biography of Bacon; while it will also furnish an example, the first we have yet had, of the manner in which his writings ought to be edited.

Bacon left no descendants. "Children," says his chaplain Rawley, "he had none; which, though they be the means to perpetuate our names after our deaths, yet he had other issues to perpetuate his name, the issues of his brain; in which he was ever happy and admired, as Jupiter was in the production of Pallas. Neither did the want of children detract from the good usage of his consort during the intermarriage, whom he prosecuted with much conjugal love and respect, with many rich gifts and endowments, besides a robe of honour which he invested her withal, which she wore unto her dying day, being twenty years and more after his death." In the Latin this last statement is—"Addita etiam trabea honoraria maritali, quam viginti plus annos post obitum ejus gestavit; totidem enim annis honoratissimo marito superstes fuit." The phraseology is somewhat ambiguous; but what the worthy chaplain designates the robe of honour with which Bacon invested his wife, and which he adds she wore to her dying day, must be, we suppose, the rank of a peeress to which she was raised by her marriage. It deserves to be noticed that Rawley, in this sketch which he gives of the life of his illustrious patron, passes over what is called his fall without so much as an allusion to anything of the kind having ever happened; evincing much more delicacy and sensibility upon that point than Bacon himself. And it is remarkable that Bayle, writing nearly a century after it occurred, had not with all his inquisitiveness heard of the catastrophe that terminated the political career of the "Great Lord Chancellor of Learning as well as of Law;"* so

* Who was the original author of this often-repeated expression? In a preface of considerable length, prefixed to a little volume entitled 'The Felicity of Queen Elizabeth and her Times, with other Things, by the Right Honourable Francis Lord Bacon, Viscount St. Alban,' 12mo, Lon.,

completely, out of his own country, had his philosophical renown filled the ears of men to the exclusion of all other speech respecting him. On the subject of Bacon's relations with his wife Rawley would seem to have practised something of the same affectionate and reverential *reticence* as on that of his delinquencies as a politician. At least it would appear from his will that the conjugal love and respect with which he prosecuted his consort during their intermarriage must have received some very decided shock before he left the world. In the beginning of the will he heaps devices and legacies upon his "loving wife,"—"all which," he says, characteristically, "I here set down, not because I think it too much, but because others may not think it less than it is;" but in the end we are suddenly startled by the following emphatic intimation of a change of mind:—"Whatsoever I have given, granted, confirmed, or appointed to my wife in the former part of this my will, I do now, for just and great causes, utterly revoke and make void, and leave her to her right only." It has not been generally noticed that Lady Bacon was a sister of the first wife of Mervin, fourteenth Baron Audley and second Earl of Castlehaven, who suffered death as a felon in 1631, and whose story makes one of the darkest and most revolting pages of our criminal history. They were both daughters and co-heirs of Benedict Barnham, Esq., Alderman of London.

The most memorable bequest in this last will of Bacon's is the following:—"For my name and memory I leave it to men's charitable speeches, and to foreign nations, and the next ages." A modest yet withal lofty appeal; and one which has not been made in vain.

1651, we find it quoted from 'The Preface to Lessius Hygiasticon;' that is, the 'Hygiasticon, seu vera ratio valetudinis Bonæ Vitæ,' of Leonard Lessius, the learned Jesuit and professor of theology at Louvaine, who was a contemporary of Bacon's, having died, at the age of sixty nine, in 1623.

ADDITIONS AND CORRECTIONS.

Vol. I. p. 16, l. 24, for "appeared Bacon's first publication, as far as is known," read "Bacon wrote a tract, which, however, is not known to have been then published, entitled."

———— l. 1 of *note*, for "B. Brit.," read "Biog. Brit."

———— p. 89, l. 9, for "probably in the same year," read "some short time after."

———— p. 113, line 5 from foot, for "three hundred," read "these hundred."

———— p. 116, l. 2 of *note*, *dele* "here" before "quotes."

———— p. 213, l. 24, for "very short, and can scarcely be all that was prepared," read "extends to only a single paragraph."

———— l. 26, after "fragment," insert "first published in the First Part of the *Resuscitatio*."

———— p. 220, at the end, add "The piece entitled 'The Praise of Henry Prince of Wales' (*In Henricum Principem Walliae Elogium Francisci Baconi*) was first published, in the original Latin, by Birch, along with an English translation of his own, in his 'Letters, Speeches, &c., of Francis Bacon,' 1763."

Vol. II. p. 7, l. 2 from foot, in *note*, for "Tennison" read "Tenison."

———— p. 24, l. 11 from foot, after "Copernicus;" insert, "with no great respect of those of Galileo;"

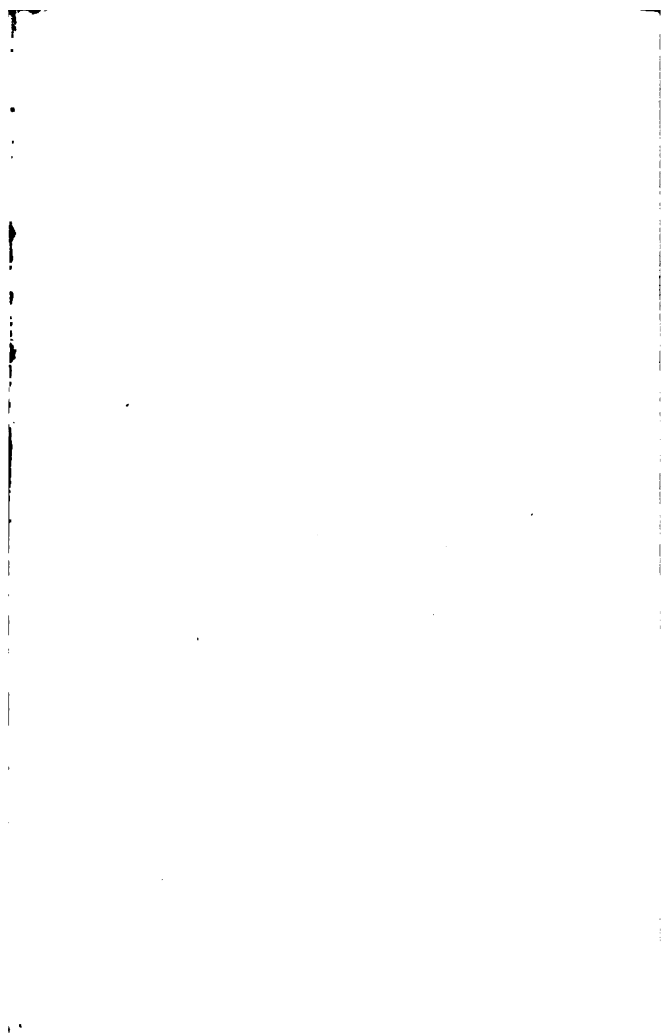
———— p. 170, l. 26, insert comma after "Leucippus."

———— p. 200, *note*, for "p. 9," read "p. 89."

———— p. 203, l. 14, for "escape" read "escapes."

———— p. 210, l. 9 from foot, for "1651," read "1670."

———— p. 218, l. 5, for "callendar," read "calendar."



1. The first part of the document is a list of names and addresses of the members of the committee.

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